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COMMODORE FORMAT

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ISSUE 53 ● £2.95 ● FEBRUARY 1995

SSHH! LISTEN

Geopaint and JiffyDOS revealed!

Three pages of top game TIPS!

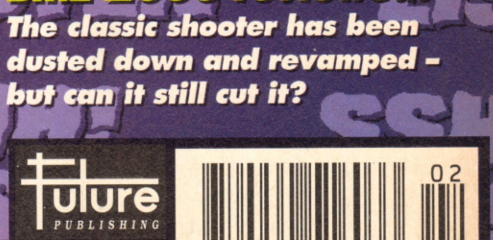
Discover how to create explosive sound effects, adapt samples and more with our guide to the art of noise!

When you buy this magazine from the newsagent's you shouldn't be able to read this. If you can, then someone's swiped the covertape. Ask your newsagent for a replacement.

Tape to disk SMART!
Turn to p.5

Top Ten PD Demos!

Swoon at the special effects and ingenuity of these excellent demos!



Blitz 2000 reviewed!

The classic shooter has been dusted down and revamped – but can it still cut it?

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5 ON THE POWERPACK...

Mind Maze
This is a puzzler to make your granny weep, your brain explode and your shrink-wrapped TV dinner spontaneously combust! With 32 levels of frenetic action, this one'll keep you going for months.

Darkest Road
The first part of this two-part text adventure sees you stomping through marshes, wiggling your toes in magic shoes and snogging a mermaid.

You also have to save the land from the evil ravages of the Black Wanderer with the magical power of the Silent Song...

PRESS FIRE
LEVEL

Bee 52 demo
As the name suggests, this is a rather bizarre shoot-'em-up. You play a bumble bee who's trying to collect enough pollen to fill his honey pot while avoiding a variety of hostile insect life.

Artris demo
Say hello to Poland's answer to Tetris. Artris is fast, smooth and has the added twist of rewarding your successes with a piccie.

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Discover the secret of sound on your C64 with our guide to everything from sampling to SID.

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A bring-and-buy sale full of like-minded souls.

TURN TO PAGE 5 FOR THE FULL COVERTAPE BRIEFING... ➤

THE MIGHTY BRAIN

After retrieving The Mighty Brain from the bottom of an algae-encrusted fish tank (he works part-time as an aquarium hygienist), we sent him to work through this month's post.

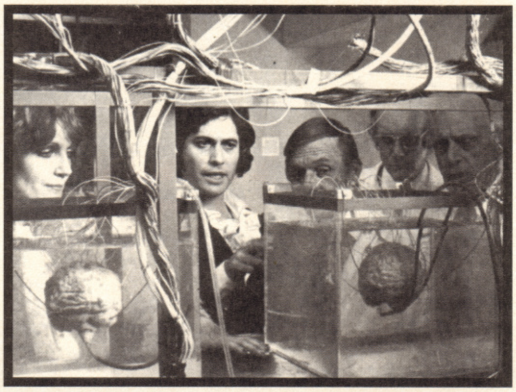
Biology lessons?

Dear TMB,
Why don't you put some educational stuff on the PowerPack? It would make a change from the normal games, and instead of killing brain cells it would be making them.
WA Ters, Waterford, Eire

Interesting idea, but how exactly do you *make* brain cells? Still, educational software is certainly worth thinking about. Oh, and by the way – is that name of yours a pseudonym or what? **TMB**

CF tapezine?

Dear TMB,
Seeing as you seem to be in the process of moving Gamebusters and Techie Tips on to the PowerPack, why don't you convert the whole magazine to tape or disk (like the LIGHT *magazines used to do)?*
Jon Bray, Bristol



Meanwhile back at the *Commodore Format* office, Karen starts researching exactly what a brain cell is. Trouble is, she hasn't had much experience in the old brain cell department yet!

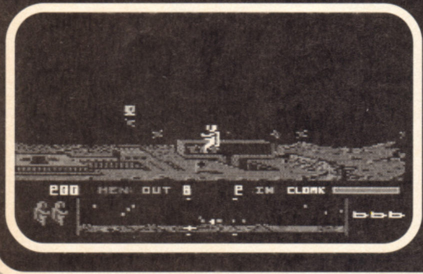
While it's doubtful that the whole magazine will become a disk- or tape-zine, Karen has been looking into ways of getting more 'editorial' pages on to the PowerPack. Indeed, *Your Sinclair* used to run a fanzine on its covertape – we could possibly do the same sort of thing, but don't expect any changes for a few months yet.

Is there no end to human ingenuity? (Well, yes, there is actually, but seeing as I'm in a good mood I'll pretend to be impressed.) **TMB**

BITS'N'PIECES

Dear TMB,
If you've reviewed Dropzone, *how much did it get, 'cos GamesMaster reviewed* Super Dropzone *for the SNES and gave it 88%?*
Chris Blood, Nowhere

Dropzone was released way before *Commodore Format* was launched, so we have never officially reviewed it. However, if we had, it would have got about 94%. TMB



Jet-pack around the funky lunar graphics with this excellent little game. Well worth 94%.

Dear TMB,
Put a free gift on the cover sometimes. Something like a £10 note.
David Connolly, Woodstock
PS Steg the Slug *is dreadful.*

No. TMB

Dear TMB,
Steg the Slug *was great.*
Neil Grayson, Scarborough

Different strokes for different folks, eh? TMB

Dear TMB,
Do you ever make up the letters?
David Baker, Newton-le-Willows

Never. But I have been known to make up the occasional answer. TMB

THE 64 SOAPBOX

MAKE YOURSELF HEARD

If you've got something to say, then TMB's letter page is the place to get your opinions heard. Write to: The Mighty Brain, *Commodore Format*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW. All letters sent to *Commodore Format* are assumed to be for publishing. We also reserve the right to edit your letters for reasons of length, grammar and punctuation.

Parallel lines

Dear TMB,
First of all thanks for covering the opening of my new PD library Parallel Logic in issue 52 of Commodore Format. *The PLPD Intro demo that was sent to you stated that PLPD's catalogues could be obtained by sending an SAE to us here. That is no longer correct, because I have now decided to create the catalogues on disk instead. So, as of January, you can receive a free copy of the catalogue by sending a blank disk and disk-sized SAE to us here at PLPD.*

Anyone who orders the introductory two-disk set (costs £2 – cheques payable to Philip Boyce) will also receive a free copy of the disk catalogue. Finally, I've also decided to postpone working on tapes for inclusion in the library until around March. Please could you pass this information on to your readers?
Philip Boyce, Parallel Logic PD, 40 Windsor Ave, Co Antrim, N Ireland BT38 9RX.

Certainly. After all, these misunderstandings are only to be expected among humans. **TMB**

Simply the best!

Dear TMB,
In CF49 you printed the feature 'How Far Would Your £64 Go?' Well, you were right. I spent about £62.50 on tapes and disks and an Action Replay. But when I had my PC computer I spent over £100 and even more on the Sega. So I would stick with the 64 if I were you. It's the best.
Mr M Wild, Stancliffe Batley

I couldn't agree more. Well, I could, but that would take too much mental energy. **TMB**

Ad it up!

Dear Sir/Madam (I may be alien, but I am male – well, by your definitions of gender, anyway – TMB),
The back cover of CF should be reserved for PowerPack info (see CF48) and not wasted with adverts for console magazines. It's only a subliminal way of saying, 'Hey, dump the 64 and buy a console.'

A more positive approach would be to contact people who are now supporting the 64 scene in the UK and convince them to advertise in CF regularly. These include Visualize, Apex, Psytronik, M&P and

the Electric Boys. The future of the 64 lies in their hands, and it's these people that the 64 owners want to read about.
Arif Pervez, Manchester

Ah, but the console mags are prepared to pay more for their ads. We're quite happy to give C64-related companies free coverage, which also means they can concentrate their resources on their software rather than advertising. **TMB**

Tip of the iceberg

Dear TMB,
We seem to have lost the complete maps and playing guides in Gamebusters. I found them more useful than just tips.
Mark Hammond, Dereham

Of course you found them more useful than 'just tips'. A complete solution is, by its very nature, bound to be more useful than a couple of tips. But fear not, Andy Roberts will still be supplying the odd complete solution or two. **TMB**

Dumbo!

Dear TMB,
In issue 51's bits 'n' pieces a caption read, 'Has Commodore been sold? Have elephants got wings?' My dictionary gave the definition of wing as, 'one of the organs of flight of insects or some animals.' An ear is an organ and, as we all know, Dumbo flew with his ears. Therefore his ears are organs of flight, and that means elephants do have wings. So, according to this logic, Commodore has been sold!
Nigel Mably, Bridgend

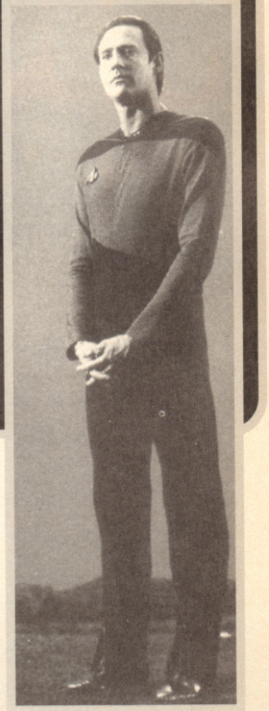
Good grief! Nigel, never get a job as a private detective. But heh, this is the real world and Dumbo is just one of those cute little fairy stories. **TMB**

Theoretically, it is possible

Dear TMB,
We all know how fab the C64 is, but did you know that in the 24th Century, long after the death of Sega, Nintendo and even the mighty IBM, the 64 technology is still at work? Dr Soong has capitalised on the Commodore's innate capabilities to create the android known as Lieutenant Commander Data.

Unfortunately, he seems highly susceptible to alien forces and computer viruses. We're wondering whether this is a fault with the hardware, or whether the software itself is bugged. Can you help?
Leia Brahms, 24th Century San Francisco

Have you checked the neural transmitters in his positronic net – their phase pattern may be out of alignment. TMB



And here is the rather handsome Lieutenant Commander Data, bless his little C64 computer chips.

PS OF THE MONTH

PS Q. How Can you tell if you've passed a purple elephocerous from the Zeppolon System?
A. The toilet lid won't close
Commander Luke Warmteawalker and Ardunto, Planet Bradford

So this is what you humans call 'lavatorial humour'. Hmmm. TMB

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COMMODORE FORMAT
MIND MAZE FULL GAME
THE DARKEST ROAD PART 1
POWER PACK
PLUS BEE 52 DEMO
ARTRIS DEMO

POWER PACK

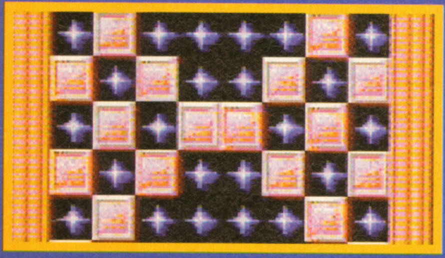
Karen Levell guides you through the packed byways of covertape loveliness to a land of gameplaying joy...

Mind Maze

Written in 1993, *Mind Maze* is one of those puzzle games that looks ridiculously easy but manages to overheat your brain before you reach the third level. To start off, stick your joypad in either port one or two, load the game, then get ready to hit the fire button.

The idea of *Mind Maze* is to clear all the blocks from the screen within a pre-determined, and very short, time scale. To reach your objective, you need to move the flashing cursor over the block you want to remove and press fire. Now, this will make the chosen block and those immediately left, right, above and below it disappear.

Unfortunately, if the block you choose has an empty space next to it, pressing fire will make a new block appear in that space. So it's a case planning ahead, which isn't easy when your up against the clock. Then, just as you're getting into the swing of things, the controls change so that rather than the blocks or spaces immediately adjacent to your chosen block changing, the ones to the top-left, top-right, bottom-left and bottom-right are affected.



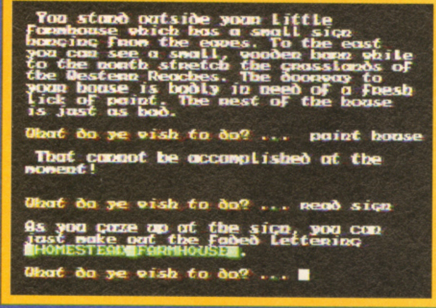
Trust me, this isn't as easy as it looks – the trashed C64 in the corner is evidence of that!

Darkest Road (Part 1)

The Darkest Road, which originally strutted its stuff on the old Speccy, is a huge text adventure in which you must defeat the evil Black Wanderer with the magic of the Silent Song. But, before you can do that, you must travel through lands foul and fair, snog a mermaid and generally avoid any of the unpleasant traps that await you.

The game is well executed and follows all the usual adventurey rules. There are four different fonts to choose from, and you can select these using the F1 button. There are also two different tunes, which you can toggle between with F3 and F5, and if you're playing in the dead of night, you can turn the music off with F7.

The game is in two parts, and we'll be putting the final part of this heroic tale on *CF55's* PowerPack.



```
 You stand outside your little
farmhouse which has a small sign
hanging from the eaves. To the east
you can see a small, wooden barn while
to the north stretch the grasslands of
the Western Reaches. The doorway to
your house is badly in need of a fresh
lick of paint. The rest of the house
is just as bad.

What do ye wish to do? ...  paint house

 That cannot be accomplished at the
moment!

What do ye wish to do? ... read sign

As you gaze up at the sign, you can
just make out the faded lettering
 HOMESTEAD FARMHOUSE .

What do ye wish to do? ... █
```

The first part of *The Darkest Road* offers you plenty of puzzles and encouragement.

NO LOAD ZONE

If you're having trouble loading this month's Power Pack then plonk the duff tape in a jiffy bag, slip in a tape-sized SAE, seal it up and send it to: *CF53* Tape Replacement Service, Ablex Audio Video Ltd.,

CF
2
tape
POWERPACK

Bee 52

As Bee number 52 your job in this demo is to collect as much pollen from the flowers as possible and then return to your hive without bumping into any of the insects or creatures that are out to make your life as difficult as is conceivably possible.

The idea here is to collect enough pollen to fill your honey pot. But be careful: you can only carry three flowers' worth of pollen at a time, and if you get hit, you lose the lot!

Controls:

Directions	Joystick (port two)
Fire pollen pellet	Fire button
Sting	Space bar
Bomb	B
Pause	Run/Stop
Quit (when paused)	Q

You don't have to be a genius to guess where the pollen is.

TAPE TO DISK

This month's Power Pack is also available on disk. To get the disk version simply cut out the token on the tape inlay card, write your name and full address on a piece of paper, pop 'em both in an envelope with a cheque or postal order, made out to Ablex Audio Video, for £1.50 (to cover duplication costs) and send it to: *CF53* Tape To Disk, Ablex Audio Video Ltd, Harcourt Halesfield 14, Telford, Shropshire TF7 4QD.

Artris demo

This *Tetris* clone hails from the chilly provinces of Poland. As ever, the idea is to rotate and fit the falling blocks together to form complete lines at the base of the pit. Unlike the traditional game, however, *Artris* offers you an incentive in the form of a picture. So every time you complete the task set (whether you have to complete a single line or a computer-designated number) you receive a line of the picture.

The game is controlled with a joystick in port two. Press fire on the Title screen to start the game (note: the game is a bit slow to respond to this command so be patient). Moving the stick left and right moves the block accordingly, holding down accelerates the falling block, while Fire rotates the block.

GAMEBUSTERS

Andy Robert's returns to the hospital of distressed gamers once again, handing out soothing solutions and poncing around in his nurse's outfit...

Bee 52

Nick Taylor

As this charming little insect simulator has been re-released by the author, (Nick Taylor, 171 Hollingdean Terrace, Brighton, East Sussex BN1 7HF – cost £4.99), it seems rather appropriate to print some fine, dandy, and almost peachy tips for it. Oh, and if you're having a few problems with the game, try this cheat: on the title screen type GRELLANDFALLA (without spaces), and you can now start the game with infinite lives, plus the ability to skip levels using F7. On with the info...

Stage 1

This is a nice, simple introduction to the game, and you should really use this opportunity to practise shooting, dodging, and running away. To complete the level with ease, simply collect the honey from the first three flowers you encounter, then head quickly back to the hive. There are some bubble monsters hanging around, but if you move quickly enough you'll never encounter them.

Stage 2

The wasps appear here for the first time, and it's important to learn how to deal with them. When they appear, fly away from them, then turn and shoot when you're a safe distance away. You'll also notice that the flowers now contain bugs – avoid their bullets at all costs. Collect honey in batches of two or three, returning to the hive in between.

Stage 3

There are plenty of frogs on this level, but they're pretty easy to avoid. Fly over them if they're on the ground, and under them if they jump. There are more 'barriers' in your way, which can be deadly if a bullet-lobbing bug is nearby. There are also a few caterpillars dotted around, which drop unexpectedly from the top of the screen. A good supply of bombs will help.

According to the advanced highway code, this sign means give priority to bees collecting pollen.

Stage 4

From this level onwards, a whole jar of honey needs to be collected – a formidable task indeed. Caterpillars make even more appearances, and generally there are lots more bugs around. Staying alive becomes more and more difficult. Collect the honey in one big batch, as it's too risky to go back and forth along the level.

Stage 5

This level has another new opponent for you to deal with; this time it's those lovely pink fish. They act in much the same way as the frogs, but move a little quicker (and appear quite unexpectedly).

If you like the demo on this month's PowerPack and would like to get hold of the full game, drop Nick Taylor a line at the address opposite.

Collecting honey is very, very difficult now, and the main task is to stay alive long enough to complete the stage. Having said that, I must say it's not as hectic as the previous level, so grab the honey in much the same way as before.

Stage 6

Frogs and fish are the major problem here, especially when flying underneath a barrier close to the water. It's better to be patient, though, so wait at the top of the screen and allow them to move before

THE DARKEST ROAD

(Powerpack 53)

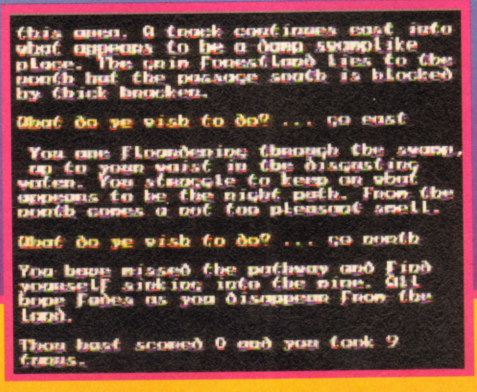
Having problems with this marvel of modern adventure games? Fear not, here's the complete solution as supplied by Clive Wilson. Torches out...

From the start: WEST ● OPEN DESK ● EXAMINE DESK ● GET PAPER ● EXAMINE PAPER ● DROP PAPER ● EXAMINE CHAIR ● GET MAP ● EXAMINE MAP ● EXAMINE TABLE ● WEST ● EXAMINE TABLE ● GET ORB ● EXAMINE ORB ● EAST ● EAST ● EAST ● EXAMINE BARN ● EAST ● EXAMINE HAY ● GET NEEDLE ● EXAMINE HAY ● GET BOOK ● EXAMINE MANGER ● EXAMINE MANGER ● GET MAP ● EXAMINE OTHER MAP ● READ MAP (you need this to get through the death swamp) ● EXAMINE NEEDLE ● EXAMINE BOOK ● READ BOOK (to gain one or two clues)

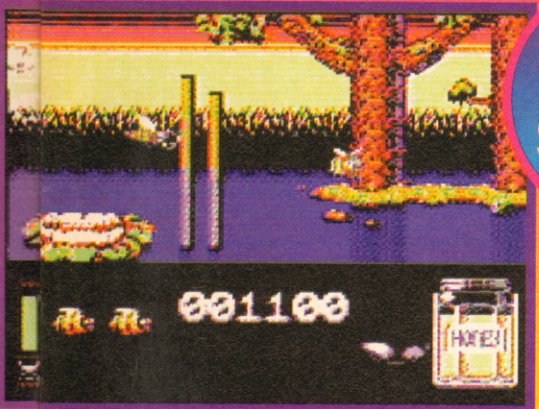
Shady goings-on

WEST ● WEST ● NORTH ● WEST ● NORTH ● NORTH ● EXAMINE ELF ● GET SHOES ● SOUTH ● SOUTH ● EAST ● WEAR SHOES (to protect you from the Shade) ● NORTH ● EXAMINE LEAVES ● GET CARD ● EXAMINE CARD ● DROP CARD ● NORTH (the Shade gives you a message) ● SOUTH ● SOUTH ● WEST ● NORTH ● NORTH ● NORTH ● NORTH ● SWIM LAKE ● DOWN ● KISS MERMAID (not because you want to, but in order to get through the forest of forgiveness) ● UP ● EAST ● REMOVE SHOES ● DROP SHOES ● DROP

Polite to the end!



```
this area. A track continues east into
what appears to be a damp swamplike
place. The main forestland lies to the
north but the passage south is blocked
by thick bracken.

What do ye wish to do? ... go east

 You are floundering through the swamp,
 up to your waist in the disgusting
water. You struggle to keep on what
appears to be the right path. From the
north comes a not too pleasant smell.

What do ye wish to do? ... go north

You have missed the pathway and find
yourself sinking into the mire. All
hope fades as you disappear from the
land.

Thou hast scored 0 and you took 9
turns.
```



Trapping the wasps behind these posts will slow 'em down, but it won't stop 'em!

proceeding. Surprisingly, the honey isn't that difficult to collect – unless you get chased by a wasp, that is. If you don't have any bombs handy, you'll need to keep a cool head to survive.

Stage 7

Another new bug appears here, namely, the dragonfly. It poses no threat whatsoever, unless it gets hit by a stray bullet, whereupon it will give chase (in much the same way as the wasps). If you're unlucky enough to hit a dragonfly or get chased by a wasp, you can say goodbye to Mr Bumble Bee. The barriers are the biggest problem, and it pays to wait rather than rush through the level.

Stage 8

You won't be surprised to learn that here everything gets in your way. The dragonflies are more agressive than before, they move much faster, and they now fire bullets too. Collecting the honey isn't too difficult, but it does take a long time as the flowers are a bit widespread. Watch out for the swarms of flies in those ever-so-awkward places.

STEG THE SLUG

(Powerpack 51)

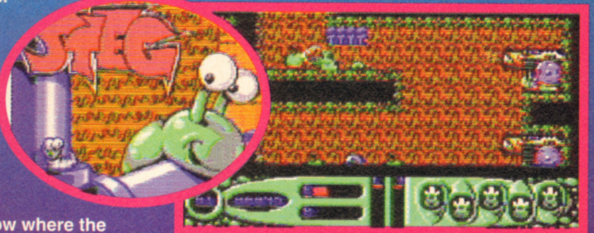
Thanks to Warren Pilkington, you now have all of the passwords for this entertaining little feed-'em-up.

Alternatively, enter POSH MOTOR as a password to activate the cheat mode. Now 'F1' can be used to skip levels.

LEVEL 2 – RDNUHCCMGU
LEVEL 3 – EDOUTIOCKO
LEVEL 4 – HDPFUVLCCM
LEVEL 5 – ODQMFUVLIC
LEVEL 6 – MEBHETPIAG
LEVEL 7 – LECGODTRHK
LEVEL 8 – NEDGFLDVRL
LEVEL 9 – OEFVHAGHLV
LEVEL 10 – PEGTTHIGLD

And just in case you don't know where the secret bonus levels are, Richard Beckett is on hand to reveal their locations...

LEVEL 1 – Bottom-right corner of the section containing the nest.
LEVEL 4 – To the left side of the nest.
LEVEL 5 – Go right and down until you're blocked by pipes – it's on the right wall.
LEVEL 6 – To the right side of the nest.
LEVEL 7 – In the right corner of the wall you started on.



Now you can cheat your way through this, the biggest slug-'em-up of all time!

Captain Fizz

(Psyclapse)

This is a rather dull, boring, repetitive, monotonous, sluggish, tedious and downright unplayable *Gauntlet* clone *(C'mon don't mince your words, Andy, let us know what you really think – Karen)*. Still, if you really want to see the elusive end-sequence, try this listing for infinite energy (if you dare). Action Replay owners can use POKE 3895,173 and POKE 4001,173 for the same effect.

```
0 REM CAPTAIN FIZZ CHEAT BY WAZ
1 FOR X=272 TO 351:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>8740 THEN PRINT "DATA ERROR":END
3 POKE 157,128:SYS 272
10 DATA 032,086,245,169,032,141,211,002
11 DATA 169,001,141,212,002,076,167,002
12 DATA 032,038,001,076,000,064,169,049
13 DATA 141,239,064,169,001,141,244,064
14 DATA 096,165,173,234,201,068,240,006
15 DATA 032,038,001,076,251,064,169,251
16 DATA 141,239,064,169,064,141,244,064
17 DATA 169,061,141,043,070,169,116,141
18 DATA 044,070,076,251,064,169,173,141
19 DATA 055,015,141,161,015,076,000,008
```

Rampart

(Domark)

Rampart is a rather playable conversion of the extremely playable arcade machine (which has consumed quite a bit of my money during frequent trips to Southend seafront). Type in this listing and RUN it; you can then press RUN/STOP followed by FIRE during the 'build' and 'arm' sections for extra time as and when required!

```
0 REM RAMPART CHEAT BY WAZ
1 FOR X=528 TO 578:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>5377 THEN PRINT "DATA ERROR":END
3 POKE 157,128:SYS 528
10 DATA 032,044,247,056,169,036,141,158
11 DATA 003,169,002,141,159,003,076,108
12 DATA 245,087,065,090,169,006,141,041
13 DATA 204,169,053,141,042,204,076,161
14 DATA 203,169,094,141,108,024,169,165
15 DATA 141,110,024,169,049,141,111,024
16 DATA 076,013,008
```

Through the Trapdoor

(Alternative)

Judging by the mailbag this month, quite a number of people are having problems with this rather fun-packed sequel, including Gary Thompson, Andrew Banks, Shona Donning, Jill Mair, Tina Sawkins and Barrie Savage. Fret ye not, here's a splendid listing POKE to take away those game over blues.

```
0 REM TRAPDOOR II CHEAT BY WAZ
```

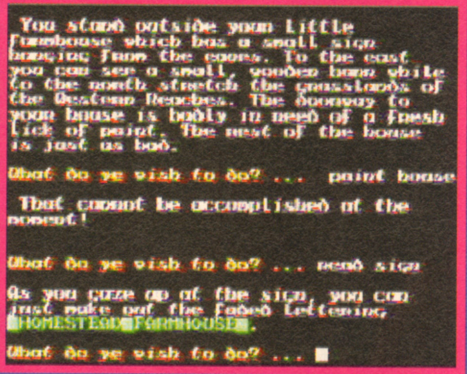
ORB ● DROP NEEDLE.

Meeting the guardian

GO SOUTH ● WEST ● SOUTH ● WEST ● SOUTH (the Guardian won't let you in unless you've kissed the mermaid) ● GET MASK ● EXAMINE MASK ● HIDE MASK ● NORTH ● EAST (if you've killed the Mermaid the Guardian gets you, and if you've tried to fight or kill anyone else, you won't be allowed into the cavern) ● NORTH ● EAST ● SOUTH ● SOUTH ● SOUTH ● EAST ● EAST ● EAST (make sure you've got the map and have read it) ● WEAR MASK ● NORTH (you will die if you're not wearing the mask) ● NORTH ● NORTH ● MOVE ROCK ● GET KEY (if you go north from here you will die of sadness) ● SOUTH ● WAIT ● SOUTH ● SOUTH ● WEST ● REMOVE MASK ● DROP MASK ● DROP MAP ● DROP MAP (you had two maps, remember?).

Window on the world

GO WEST ● WEST ● NORTH ● NORTH ● NORTH ● NORTH ● GET ORB ● GET NEEDLE ●



```
You stand outside your little
farmhouse which has a small sign
hanging from the eaves. To the east
you can see a small, wooden barn while
to the north stretch the grasslands of
the Western Reaches. The doorway to
your house is badly in need of a fresh
lick of paint. The rest of the house
is just as bad.

What do ye wish to do? ...  paint house

 That cannot be accomplished at the
moment!

What do ye wish to do? ... read sign

As you gaze up at the sign, you can
just make out the faded lettering,
HOMESTEAD FARMHOUSE.

What do ye wish to do? ... █
```

I dunno, you offer to do a spot of DIY home improvement and what happens? You have to go out questing instead! Honestly...

EAST ● EAST ● CLIMB WINDOW (you will get a message saying 'it's too high) ● STAND ON DAIS ● CLIMB WINDOW ● SAY MAJIK

That's it for part one of *The Darkest Road*, but we'll be concluding our solution in *CF55*, which is also when you'll also be getting the second part of the covertape game.

```
1 FOR X=269 TO 314:READ Y:C=C+Y:POKE X,Y:NEXT
2 IF C<>5566 THEN PRINT “DATA ERROR”:END
3 POKE 157,128:SYS 269
4 DATA 032,086,245,169,032,141,240,003
5 DATA 169,001,141,242,003,076,174,002
6 DATA 087,065,090,238,032,208,238,032
7 DATA 208,169,165,141,148,109,169,076
8 DATA 141,093,096,169,112,141,094,096
9 DATA 169,096,141,095,096,096
```

DEADLINE

(Powerpack 51)

This latest game from Visualize may have a spookily familiar concept (compared to, say, *Dropzone*), but it demands more than a bit of simple blasting. Here are a few tips if you're stuck on the demo level...

- Your craft will automatically drop to the bottom of the screen if left untouched, so keep jabbing the joystick upwards to stay in the same spot.
- Unless the world is destroyed in a nuclear holocaust or you have to go downstairs for tea, keep your finger firmly on the fire button at all times.
- As soon as you've collected a scientist, move quickly (along the top of the screen) to the teleporter – it's green with a large arrow on the side.
- The level map wraps around, so it doesn't matter which direction you fly in. Sooner or later you'll reach the right point.
- Having said that, I should point out that if there are several aliens moving in the same direction, you should follow them. Why? Basically, you'll move at the same speed as them and thus restrict the amount of new aliens that can fly on to the screen (and pose a threat to your life).

Invite a friend round to help you out – you can keep an eye on the aliens while he/she looks out for the scientists (it's virtually impossible doing it by yourself – ooer).

The most hated word in the entire universe has to be 'deadline'! Makes you shiver just thinking about it!

Captain, the sensors are picking up a big black 8-ball off the port nacelle...

... erm, make that an 8-ball, a grey sphere, a blue globe, a green diamond and some OuterSpacer crisp lookalike!

When all else fails, put your foot to the floor and hot foot it out of there. Warp ten, anyone?

SHARK

(Players Premier)

And, no, before you start to make wise-cracks about sharks that play the cello, this particular game is a Cybernoid-esque shoot-'em-up. It's also a might tricky, so this listing for infinite lives, mines, blasters, bouncers, missiles, and shields should come in pretty useful.

```
0 REM SHARK CHEAT BY WAZ
1 FOR X=528 TO 577:READ Y:C=C+Y:POKE X,Y:NEXT
2 IF C<>4863 THEN PRINT “DATA ERROR”:END
3 FOR I=1 TO 6:READ A$:PRINT “INFINITE ”;A$;:INPUT A$(I)
4 IF A$(I)=”N” THEN FOR X=554+(3*I) TO 556+(3*I):POKE X,234:NEXT
5 NEXT I:POKE 157,128:SYS 528
10 DATA 169,029,141,040,003,169,002,141
11 DATA 041,003,032,086,245,169,011,141
12 DATA 206,001,169,034,141,207,001,096
13 DATA 023,001,026,169,173,141,066,053
14 DATA 141,234,026,141,188,027,141,124
15 DATA 026,141,112,028,141,124,027,076
16 DATA 235,002,LIVES,BOUNCERS,MINES
17 DATA MISSILES,BLASTERS,SHIELDS
```

SMASH TV

(Ocean/Hit Squad)

It may be a little on the old side, but plenty of people are still writing in for tips and cheats, such as Luke Simpson from Aberdeen. We don't have room to print a listing, so satisfy yourself with these tips.

- The single joystick control method is the key to long-term survival, the double joystick method will just confuse you.
- Don't rush around the screen – your weapons are more effective when you're standing still.
- Never put yourself at risk for the sake of bonuses (such as gold, silver and cash).
- Taking the shortest possible route isn't always the best idea – if you're low on lives, pay a visit to a bonus room.
- Extra lives don't appear very often, so when they do, run for them.
- Extra speed is especially useful on level three, although it tends to hamper you on other levels.
- Don't waste time picking up the keys – they're totally, utterly and completely useless (and the Pleasuredome doesn't even exist!).
- Mutoid Man moves about the screen banging his fists on the floor, which causes the whole arena to shake violently. The best approach is to shoot his left arm first (until it disappears), then repeat the process on his right arm. Then, staying on either the left or right of the screen, repeatedly shoot until he's completely dead. Don't be tempted to shoot him from above or below – it's too hazardous.
- Scarface is, strangely enough, the hardest of the three bosses. The only way to kill him is to blast every single segment of his surrounding shell until only a crater remains. The bottom segments are difficult to shoot, because he moves around too quickly. It also pays to keep moving at all times – the homing missiles are fatally accurate. If a missile icon appears, grab it.
- Eat My Eyeballs is much the same as the Mutoid Man, apart from being a little faster on his caterpillar tracks. It will take a few more shots than before, but again shoot his left arm, then his right, then stay on one side of the screen and shoot until the blighter is no more.

The National Lottery?

Yes, simply by sending in your finest tips, maps, cheats, POKEs, solutions and general game-busting information, you could be in with a chance of winning the jackpot prize (that's right, a whole pot of jacks). If you know an infinite lives cheat, the entrance to a secret room, or how to polish off the final guardian on level 99, let us know. Plop your goodies in an envelope, then post it to: Andy Roberts' Gamebusters, *Commodore Format*, 30 Monmouth Street, Bath, Avon, BA1 2BW. Don't forget to include your full name and address, along with some cheesy Wotsits.

TRUE ROM-ANTICS

This month Jason Finch starts a romantic trek through the jungle of information that lies at the heart of real coding power – exciting, isn't it?

Unless you haven't been paying attention, you should at least have an inkling of what a ROM routine does. No? In case you've been whispering to your mate at the back of the class, I'll give a brief explanation that everyone should be able to understand. Everyone, that is, who has read and mainly understood the recent Mean Machine Code series. You want to write a game or do something useful? You need to read this first!

So what is it?

ROM is an abbreviation for Read Only Memory. This means you can only read from that area of memory – you can't write to it. In computer terms, this means you can PEEK, but you can't POKE; it's the C64's equivalent of that famous line 'you can look but you better not touch!'

When you switch on, the C64 knows that it has some ROM, and it knows where to find it. The two biggest chunks, the two that we'll focus on in this series, are at $A000-$BFFF and $E000-$FFFF. If you haven't quite grasped hexadecimal yet – you really should you know – that's 40960-49151 and 57344-65535. The first of these 8K chunks of memory is the Interpreter ROM and the second is the Kernal ROM.

Basically, the Interpreter deals with Basic and the interpretation of commands that you give to it, and the Kernal deals with input, output and memory management. The Kernal is really just a big table of machine code instructions that tells the computer to call some other routine somewhere in memory. Tables like that are known as jump tables.

Samuel HADIDA présente
LE "BONNIE & CLYDE" DES ANNEES 90
CHRISTIAN SLATER
PATRICIA ARQUETTE
un film de
TONY SCOTT
réalisateur de TOP GUN
écrit par
QUENTIN TARANTINO
(RESERVOIR DOGS)
avec
Dennis HOPPER
Val KILMER
Gary OLDMAN
Brad PITT
Christopher WALKEN
TRUE romance
SKYROCK

Did you know that ROM routines inspired the film *True Romance*? No, me neither.

But how do they do that?

The ROM routines all work by simply passing the appropriate JSR instruction from your machine language program. With some you need to give other values in order to get them working correctly. For example, if you want to position the cursor at some particular point on the screen, there is a ROM routine that will do it for you. But it needs to know the horizontal and vertical position of where to put the cursor. Such values are called parameters, and the act of telling the ROM routine what values to use is termed 'passing the parameters'.

Another example is saving a file. Again, there is a ROM routine to do it for you, but you need to tell it what area of memory to save, which device to save it to, and where to find the filename in memory. There is a ROM routine to do practically everything – from clearing the screen to checking and displaying which keys are being pressed, and from opening a file on tape to saving a program on disk.

NEXT MONTH

But the big question remains, how do you do that? Well, stay tuned because this series will reveal all. Next month we show you how ROM routines read keyboard characters, store them in memory and display them on screen.

The big list

The following is a complete list of Kernal ROM addresses to call in order to perform certain actions. The most common of these addresses will be explained in full during this series, and there'll be plenty of examples for you to work through, too. So this box, which we've lovingly entitled 'The big list', is only here as a reference for future issues. Enjoy, and we'll explain more next month!

Name		Address function
TALK	$FFB4	Command a device to start transmitting
TKSA	$FF96	Send the secondary address for TALK
CIOUT	$FFA8	Output a byte to the serial port
UNTLK	$FFAB	Command all devices to stop transmitting
LISTEN	$FFB1	Command a device to start receiving
SECOND	$FF93	Send the secondary address for LISTEN
ACPTR	$FFA5	Input a byte from the serial port
UNLSN	$FFAE	Command all devices to stop receiving
SETLFS	$FFBA	Set up a logical file
SETNAM	$FFBD	Set up a filename
OPEN	$FFC0	Open a logical file
CLOSE	$FFC3	Close a logical file
LOAD	$FFD5	Load RAM from a device
SAVE	$FFD8	Save RAM to a device
CHKIN	$FFC6	Open a channel for input
CHRIN	$FFCF	Input a character from a channel
CHKOUT	$FFC9	Open a channel for output
CHROUT	$FFD2	Output a character to a channel
CLALL	$FFE7	Close all channels and files
CLRCHN	$FFCC	Clear all input and output channels
Name		Address function
STOP	$FFE1	Check if the STOP key is pressed
SCNKEY	$FF9F	Scan the keyboard
GETIN	$FFE4	Get a character from the keyboard queue
RAMTAS	$FF87	Perform RAM test
VECTOR	$FF8D	Manage RAM vectors
CINT	$FF81	Initialise the screen editor
IOINIT	$FF84	Initialise input and output devices
RESTOR	$FF8A	Restore default system and interrupt vectors
IOBASE	$FFF3	Define input and output memory page
MEMBOT	$FF9C	Set the bottom of memory
MEMTOP	$FF99	Set the top of memory
UDTIM	$FFEA	Update the system clock
RDTIM	$FFDE	Read the system clock
SETTIM	$FFDB	Set the system clock
PLOT	$FFF0	Set or read the cursor location
READST	$FFB7	Read the device status register
SETMSG	$FF90	Control output of system messages
SCREEN	$FFED	Return the screen format
SETTMO	$FFA2	Set IEEE bus card timeout flag

MAKING 10TH DAN

PART 9

Prepare to be stunned, amazed and completely baffled by this month's game diary, as Jon Wells attempts to explain the difference between a sprite and character editor. Higher maths, anyone?

The project's progressing really well at the moment. I've finally sorted out the sprite (or should that be character?) editor part for *10th Dan* – although I had plenty of problems to work through to get there. The Loading/Introduction and End sequence tunes are also ready, so there's been some progress on the music front too!

But before I get into all that, though, you might be interested to know that you'll be able to see how *10th Dan's* shaping up for yourself in the near future. If all goes according to plan, there'll be a demo of the game on the *CF* Powerpack before its general release in the spring.

Anyway, enough of this wibble. As I've already said, the sprite editor's finished, although it's now an official sprite/character editor. Why? Well, I tested various sprite and character crunching/uncrunching methods, and found that the fastest was horizontal-column, character to sprite crunching, so this is what I'll be using in *10th Dan*.

Getting into character

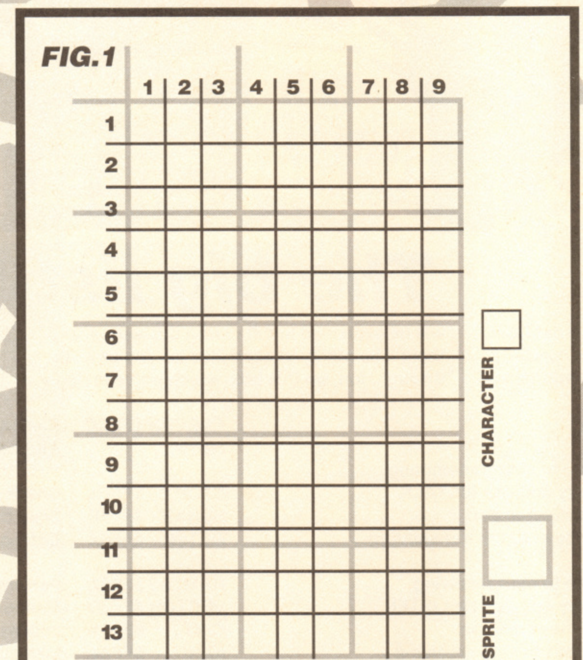
The problem with a normal sprite editor is that you need to program a convertor to turn all the data into characters. To remedy this, I decided to turn the sprite editor into a sprite/character editor as well. Not only was this quicker to program, but there's also no need for a multi-plexor for the sprite character part. When you're developing graphics in this mode, it's looks as though you're drawing sprite graphics – the characters are still exactly same size as before: 15 (3 x 5), but the sprites are stored into the Character Set memory instead!

There are a total of 13 character columns, each of which is 9 characters wide. These columns form the same sprite area of 15, with each column measuring 8 pixels in height, while each character is 8 pixels high by 8 pixels wide *(Sorry? – Karen)*.

Each 9-character horizontal-column has its own independent memory location. This method also has the added benefit of enabling me to call or reverse/flip and paste any column in any of the 13 character columns within the 15 sprite block that forms each fighter. This is getting a bit complicated now, isn't it? Well, it must be, because I don't understand it either!

Seriously, though, to understand it properly take a butcher's at Fig1. See the 13 columns of 9 characters and the 15 sprites that makes up the whole grid? Well, that's how the view memory is laid out within each fighter's graphic block! The whole point here is that I can use the existing columns to build other animation frames, which will save more memory! When a fighter is walking, for instance, his guard is up, so only the lower part of his body moves.

FIG.1



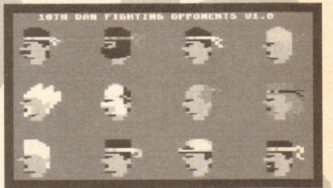
This diagram represents the different view memory layout of the sprite and character editors.

A moving discovery

I've already started developing the moves and putting in the frames. At first I tried to draw the frame of each move from a standing position to a connecting position. This proved difficult – I'm now bald from repeated hair pulling. The trouble is getting the last few frames correct, if you go too far with the first few frames it doesn't link properly and the animation looks, how would you put it… naff! So I came up with a better method, whereby you draw the last frame first – after all, the standing frame is already present. This approach is much easier to follow – I can see where the frames are heading and correct them accordingly.

Only a few are complete so far, but you'll see more in part ten. If you look at the screenshot below, you should see a picture of 12 opponents, there's still room for improvement, of course, and some of the fighters will be modified or even dropped before the final version appears.

Well, that's about all for this month. In part ten we'll be looking at the moves used in the game, how the control system works, the problems that appear as a result and how they're tackled. Don't miss it!



So, who's facing the axe?

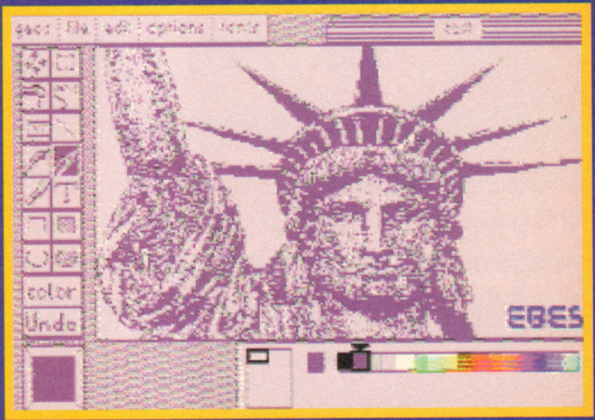
Order, gentlemen, order!

If you've been wondering how you to get hold of a copy of *10th Dan*, you'll be pleased to learn that you can reserve your copy now! You don't need to send any money – just whack your name, address, two stamps (first- or second-class) and details of the game you're after (Visualize has a wide range, check out previous *CFs* for details) into an envelope and send the whole lot to: Visualize, 9 De Grey Road, King's Lynn, Norfolk PE30 4PH.

That way, as soon as the game's ready, we can let you know and you can send your cheque or postal order accordingly. Visualize desperately needs your support, without it, it won't be able to continue producing projects for the 64.

GEOPAINT

Last month Russ Michaels, the boss of Electric Boys Software, waxed lyrical about the benefits of GEOS and its word processing proggy Geowrite. This month he returns to talk you into buying Geopaint – not that he's biased or anything...



Geopaint is capable of handling highly detailed images like the one shown here. It also has a wide range of colours available for budding artists.

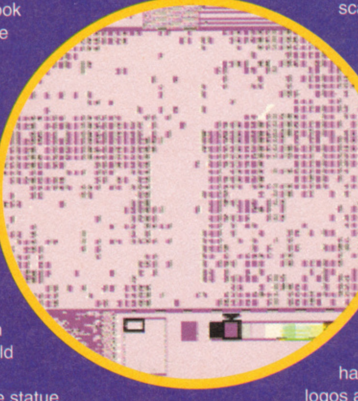
Geopaint is the second main application that comes with the *GEOS 2.0* package. It's a high-resolution art package with a difference. Unlike most art packages, *Geopaint* uses an area covering about six screens (2 wide by 3 deep), which represents the true size of an A4 page.

What happens when you print a picture from your usual art package, such as *Art Studio*, is that the picture is enlarged and re-scaled to fit the page. This effectively makes it look more blocky, and the fact that the actual image only covers a quarter of the page in its true size means the size of your designs are limited from the start.

Geopaint is different. It enables you to scroll up, down, left and right to any point of the screen so you can design your piccies according to their true dimensions. Take a look at the Statue of Liberty screenshot – in a standard art package this would be all you would draw, but with *Geowrite* you can fit in the whole statue, and print it out exactly as it looks on screen.

All the usual graphic utilities are included: box, line, circle, fill, delete and spray. You can also include text that draws on all the fonts, styles and sizes available in the *Geowrite* program. You also have access to the main desktop's resources of the Photo Manager and Scrap, so you can cut out and copy any part of your piccie and place it in a Photo Album for later use. And, if you're feeling in a montage type of mood, you can even copy it to another part of the screen, or just delete it.

Objects from the Photo Album can be copied into the Scrap and placed on any picture at any time. They can also be re-scaled, either up or down, to fit in a user-defined window (the Statue of Liberty pic was originally two screens wide). And if you end up with 'jaggies' after enlarging the image, just activate the automatic smoothing function and they'll be levelled out.

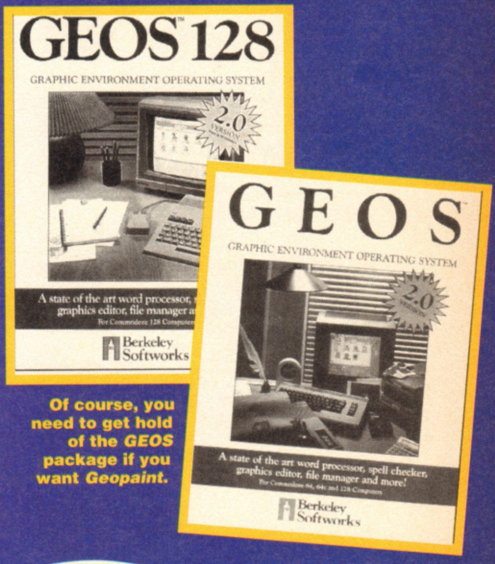


This is *Geopaint's* zoom mode in full effect. Using this, you can alter your image pixel by pixel.

Any objects cut from a *Geopaint* file can be pasted into *Geowrite* documents, which is handy if you want to design your own logos and insignias to give your documents that professional edge.

Geopaint also has an incredibly useful zoom mode for doing those extra fine details. Not only can you view the zoomed part of the screen, but you can also view it in its original size at the same time, which means you can judge the overall impact of any detailed changes as you make them – a bit nifty that.

Geopaint is a hi-res package, which means you can only use one colour per 8 by 8 pixel block. However, the size of the editing area makes it easy to separate different colour objects, and considering *Geopaint* is intended for designing artwork for subsequent printing and that most people haven't got the luxury of colour printers, you could argue that hi-res is preferable to multicolour anyway.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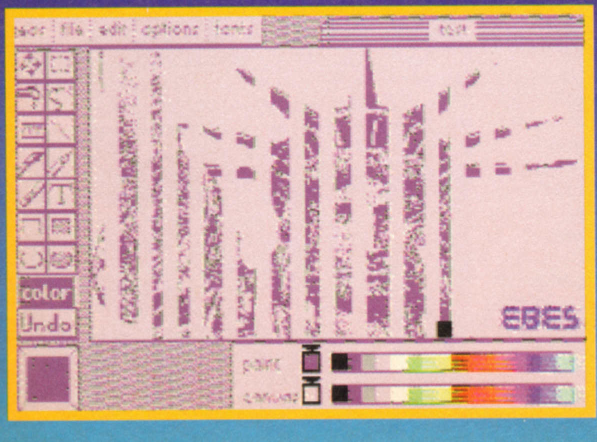
Of course, you need to get hold of the *GEOS* package if you want *Geopaint*.



You can also adapt images to make your own statement. (Okay, so I'm no artist!)

PAINT THE TOWN!

Geopaint comes with the main *GEOS* package (which also include *Geowrite*). Prices start at £39.99. If you want more info, grab a copy of the Boys' latest product guide by sending your name, address and two first-class stamps to EBES, 917B Brighton Road, Purley, Surrey CR8 2BP.

SSHH! LISTEN

Have you ever wondered how programmers manage to achieve all those wonderful sound effects? Well, we convinced 10th Dan diary writer, Jon Wells, to let us into his secrets...

The Commodore 64 has to be one of the best machines when it comes to built-in sound. Y'see, the big machines, such as consoles, Amigas and PCs, largely depend on real-time samples for music and sound effects.

Of course, they've got the memory to handle it, but the good old 64, as we all know, only has a tiny 64K. To use samples for all musical and sound applications would, therefore, be a complete waste of (RASTER) time and memory, so we use the awesome SID chip instead. For those of you who are unaware of SID, here's a quick run-down of what the resourceful little chip can do...

SID, which stands for Sound Interface Device, is already inside your trusty 64, just waiting for you to POKE it into life! SID has three different voices, which generate all the necessary sounds that accompany 99% of the 64 games you play. It also handles all the voices and music in the gorgeous tunes that the 64 throws at you every time you play a game...

The only trouble with SID is that it's extremely complicated for beginners to understand – but then that's where the Sshh! Listen feature comes in. Yes, we're going to be looking at (or should that be listening to?) how you can produce great sounds on your C64. Whether you want to play at producing your own sounds, satisfy your curiousity about how SID works, or install dazzling sound effects into that silent game you've just produced - then this is the feature for you!

The sample question

Before you can understand the true benefits of the Sound Interface Device, though, you need to understand the way other computers handle sound, namely, through sampling. Sampling is where real sounds are digitised into bytes for the computer to understand. On the C64, samples are played through the volume control pointer at memory location $D418 (Hexidecimal), 54296 (Decimal), and it's here that you can see why they take up so much memory.

Anyone out there with the Datel Sound Sampler? Well, you should know what I'm taking about; you can only record about three seconds of samples within about 40K – and Datel's sampler is only a low-level digitiser. There are better high-level samplers that can record much more within the same amount of K, but they're very expensive and, to be frank, unless you're planning to release software commercially, they're likely to be out of your price range.

Still, even if you're not planning to choke your memory with samples, it's still worth knowing how they work, and how you can use them should the need ever arise. The following machine code listing is a sample player. (Those of you using a 128 should make sure you're in 64 mode).

```
1 REM -  HIGH/LOW BIT  SAMPLE PLAYER -
2 REM - THIS PROGRAM CAN BE RELOCATED -
3 REM -  IF YOU CHANGE THE LO NUMBER  -
4 :
5 LO = 49152
6 :
7 FOR A = LO TO LO + 78
8 READ B : POKE A,B : NEXT A
9 :
10 DATA 120,169,53,133,1,169,1,141
11 DATA 4,212,141,11,212,141,18,212
12 DATA 169,136,141,6,212,141,13,212
13 DATA 141,20,212,169,0,133,251,160
14 DATA 0,177,251,166,255,208,6,41
15 DATA 15,162,0,240,4,74,74,74,74,141
16 DATA 24,212,166,254,202,208,253
17 DATA 200,208,229,230,252,165,252
18 DATA 197,253,208,219,169,55,133,1
19 DATA 169,31,141,24,212,88,96
```

Okay, done that? Right save out the listing (if you're unsure of how to do this, consult your user manual), and reset the machine.

If you own an Action Replay or any Reset Cartridge, then here's an extra treat for you. First load in a game or program that you feel uses samples – anything like *IK1* or 2, *Oh No, Turbo Outrun* or *Stormlord* (loading tune). Then, when the program starts, simply reset your 64 with the Cartridge only. (If you reset the 64 via the power switch you'll lose all the program data.) At this point you can load in your version of the sample program above, and RUN it. Now, to search the whole memory for samples, just enter and run this next program...

```
1 A = 000 : REM - START BLOCK       -
2 B = 255 : REM - END BLOCK        -
3 S = 010  : REM - SAMPLE SPEED    -
4 Z = 000 : REM - PLAY LOW 4 BITS -
5 :
6 POKE 252,A : POKE 253,B : POKE 254,S
7 POKE 255, Z : SYS 49152
```

Once you RUN it, you should start hearing some weird noises, and, if there's a sample present, you'll hear that too! If a sample isn't played, try changing the Z to 001 instead. This plays the high 4 bits of the byte, which maybe where the sample is hiding. Y'see, the 64's bytes consist of 8 bits (which is why it's called an 8-bit machine), but the samples only use 4 bits. This means it's possible to store two samples over 10K using the high 4 bits and low 4 bits that make up the whole byte.

If any of you own *IK+* then change the pointers as follows. The samples take up memory from $BF00 - $D000 (hex), the sample player only needs to know the high part of the location, thus $BF and $D0 (which in decimal is 191 and 208 respectively).

The player is now ready to be transferred into $C000 onwards (which is 49152 in decimal), but this would corrupt the samples, so change the LO = 49152 line to LO = 8192 before RUNNING the sample listing. You also need to change the call SYS 49152 address to SYS 8192. Anyway, here are those pointers, so change the line numbers in the hear listing to...

The SAMPLE speed S should be changed to 40.

A = 191 - B = 198 and Z = 1 for IK+ PUNCH.
A = 198 - B = 204 and Z = 1 for IK+ HIGH KICK.
A = 204 - B = 208 and Z = 1 for IK+ LOW KICK.
A = 191 - B = 198 and Z = 0 for IK+ FALL 1.
A = 198 - B = 208 and Z = 0 for IK+ FALL 2.

Try different speeds for lower or higher pitch of sounds, and that's just about it! You've successfully experienced programming with samples. Those of you with sample hardware should have no problem

Effects Install

Change the FX number in line 3 of the new sound effects routine on page 13 for the number of sound effects you wish to install. Each sound effect consists of eight different option numbers, which is why each DATA line in the installation program has no more than that eight. The eight DATA numbers in each line represent the following in this order...

1 - Effect PITCH
2 - PULSE WAVEFORM PITCH from 0 to 15 only
3 - WAVEFORM CONTROL
4 - ATTACK / DECAY CONTROL CYCLE
5 - SUSTAIN / RELEASE CONTROL CYCLE
6 - EFFECT PLAYING SPEED
7 - FILTER ON OR OFF 1 is on 0 is off
8 - VIBRATO LEVEL

The Vibrato level slowly scales the effect from the PITCH up to the VIBRATO amount and back down to the PITCH, where the whole process begins all over again in a continuous loop. Changing the speed will affect the way the VIBRATO operates. The SPEED can range from 0 (normal) to 127 (superfast), but adding 128 to the SPEED number reverses the process, thus the range spans from 128 (normal) to 255 (superslow).

To synchronise different voices together add two to the WAVEFORM CONTROL number – so 17+2 = 19 for triangle sync. This produces a more tinny sound, which was used for the three-voice bell effect.

SID specs

VOICE 1	VOICE 2	VOICE 3	TYPE
$D400 / 54272	$D407 / 54279	$D40E / 54286	Pitch low byte
$D401 / 54273	$D408 / 54280	$D40F / 54287	Pitch high byte
$D402 / 54274	$D409 / 54281	$D410 / 54288	Pulse waveform low byte
$D403 / 54275	$D40A / 54282	$D411 / 54289	Pulse waveform high nibble (from 0 to 15 only)
$D404 / 54276	$D40B / 54283	$D412 / 54290	Waveform control
$D405 / 54277	$D40C / 54284	$D413 / 54291	Attack/decay control cycle
$D406 / 54278	$D40D / 54285	$D414 / 54292	Sustain/release control cycle

WAVEFORM TYPES
17 = Triangle
33 = Sawtooth
65 = Pulse (POKE the pulse waveform high/low bytes to hear the effects!)
129 = Random noise

$D415 / 54293 = Filter pitch low nibble (from 0 to 7 only)
$D416 / 54294 = Filter pitch high byte

$D417 / 54295 = Filter voice control

$D418 / 54296 Volume control / Filter mode:
15 + 16 = Low pass
15 + 32 = Band pass
15 + 64 = High pass

making your own samples and using this proggy to incorporate them into a game or what have you!

If you're still having problems, then check the examples again – and don't forget to turn the volume up on your monitor, eh?

Call SID

Samples are one way to produce sound on the 64, but as we mentioned earlier the memory consumption is formidable. There is a more convenient and better way to produce sound, though, namely, via SID itself! Take a look at the 'SID specs' box opposite, which explains the SID memory layout. So now you know how it works in theory, but how do you go about creating a sound? Well, let's start by creating a simple explosion – just type in and run the following…

```
10 POKE 54276,000 : REM - CLEAR VOICE 1
20 POKE 54273,040 : REM - NOTE PITCH
30 POKE 54276,129 : REM - NOISE WAVEFORM
40 POKE 54277,011 : REM - ATT/DEC
50 POKE 54296,015 : REM -VOLUME CONTROL
```

Did you hear that? Not bad for starters, was it? Okay, now let's use SID's FILTER to improve the quality. First change the volume control in line 50 from 015 to 031 – this tells SID to go into Low-Pass filter mode. Now add these extra lines for the filter itself…

```
60 POKE 54295,241: REM - FILTER VOICE 1
70 POKE 54294,060: REM - FILTER PITCH
```

Okay, once you've sorted that out, just RUN the program for a higher quality explosion, good eh? Yes, it sure is a lot of messing about with the POKES isn't it! Imagine if you wanted to produce up to 31 different sound effects with Vibrato, Synchronisation or Ring modulation. That's right, it would take ages to program, and would probably take up all of your BASIC memory too. Well, fear not, because this next listing does all the hard work for you. The routine, which is in machine code, enables you to create up to 31 different sound effects in around 1K of memory. Yes, I know it's big, but it'll be worth it in the end. Here goes…

```
1 REM -    SOUND EFFECTS PLAYER    -
2 REM -     CODED BY JON WELLS     -
3 REM -   FOR COMMODORE FORMAT   -
4 :
5 C = 0 : FOR A = 49152 TO 49567
6 READ B : POKE A,B : C = C + B : NEXT A
7 IF C = 48380 THEN END
8 PRINT "DATA ERROR! RE-CHECK LINES..."
9 :
10 DATA 120,169,49,141,20,3,169,192
11 DATA 141, 21,3,169,75,141,5,220
12 DATA 32,55,192,88,96,120,169,49
13 DATA 141,20,3,169,234,141,21,3
14 DATA 160,24,169,0,153,0,212,136
15 DATA 16,250,169,64,141,5,220,88
16 DATA 96,32,58,192,76,49,234,76
17 DATA 61,192,76,128,192,162,192,169
18 DATA 0,157,0,2,232,208,250,162
19 DATA 24,157,0,212,202,16,250,173
20 DATA 98,192,141,24,212,173,99,192
21 DATA 141,23,212,173,100,192,141,22
22 DATA 212,96,31,240,255,0,7,14
23 DATA 0,8,16,1,2,4,6,5
24 DATA 3,96,40,67,41,96,74,79
25 DATA 78,96,87,69,76,76,83,96
26 DATA 162,0,32,140,192,162,1,32
27 DATA 140,192,162,2,188,101,192,189
28 DATA 248,2,201,255,208,3,76,11
29 DATA 193,10,10,10,157,251,2,169
30 DATA 255,157,248,2,169,0,153,0
31 DATA 212,153,2,212,153,4,212,189
32 DATA 251,2,168,185,136,193,157,192
33 DATA 2,185,137,193,157,196,2,185
34 DATA 138,193,157,200,2,185,139,193
35 DATA 157,204,2,185,140,193,157,208
36 DATA 2,185,141,193,157,212,2,185
37 DATA 142,193,157,216,2,185,143,193
38 DATA 157,220,2,189,216,2,240,15
39 DATA 173,255,2,61,110,192,29,107
40 DATA 192,141,255,2,76,0,193,173
41 DATA 255,2,61,110,192,141,255,2
42 DATA 169,0,157,224,2,157,228,2
43 DATA 157,232,2,188,101,192,173,99
44 DATA 192,13,255,2,141,23,212,189
45 DATA 212,2,16,49,41,127,221,224
46 DATA 2,208,59,169,0,157,224,2
47 DATA 189,192,2,24,125,232,2,153
48 DATA 1,212,189,196,2,153,3,212
49 DATA 189,200,2,153,4,212,189,204
50 DATA 2,153,5,212,189,208,2,153
51 DATA 6,212,76,98,193,32,40,193
52 DATA 189,212,2,221,224,2,240,203
53 DATA 254,224,2,76,77,193,254,224
54 DATA 2,96,189,220,2,240,250,189
55 DATA 228,2,208,20,254,232,2,189
56 DATA 232,2,221,220,2,208,8,189
57 DATA 228,2,73,1,157,228,2,96
58 DATA 222,232,2,189,232,2,240,239
59 DATA 96,0,0,0,0,0,0,0
60 DATA 48,0,129,10,0,0,1,0
61 DATA 128,3,17,12,0,3,0,16
```

Phew! Right, now that's all typed in, save it out before you do anything else – after all, you don't want to type that lot out again, do you? Once you've saved it, RUN the proggy. If an error message appears, check the listing for mistyped numbers and try again. If there's no error, then the player has been installed in memory.

The code resides from $C000 (Hex) 49152 (Dec) to about $C290 (Hex) 49808 (Dec) in total - including the sound effect data too! A couple of sound effects have been included in the listing, and are already installed. To hear them you first need to switch on the interrupt player by typing SYS 49152. Now just POKE any of the three voices at locations from 760 (voice 1), 761 (voice 2) and 762 (voice 3).

Try this - POKE 760,1 to hear an explosion, or 2 for a bell sound, or 0 to clear a voice. Other player specifications are as follows…

SYS 49152 to set-up IRQ player and clear all SID voices/pointers.
SYS 49173 to disable IRQ player and turn off the SID.
SYS 49213 to clear all 3 voices at any time.
POKE 49250, volume control
POKE 49251, filter control
POKE 49252, filter pitch.

So, by changing the filter pitch to say - POKE 49252,85 instead of 255, which is its present setting, the effect becomes crisper as it cuts out unwanted frequency bits. Try playing the explosion (effect 1) once you've changed the pitch, you should hear quite a difference!

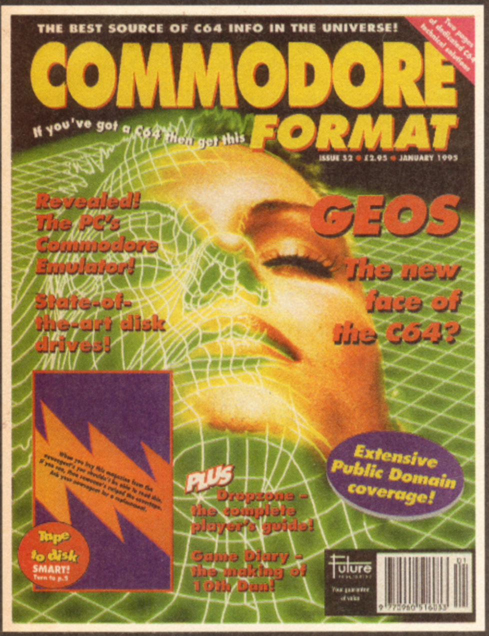
You will also notice that the filter has no effect on the bell (effect 2). This is because the filter has not been selected for the bell effect (more about doing that next). The following routine should be used when installing new sound effects, so keep it handy for your own programs:

```
1 REM - SOUND EFFECTS INSTALLATION -
2 :
3 FX = 6 : REM - AMOUNT OF FX -
4 :
5 FOR A = 49552 TO 49551+(8*FX)
6 READ B : POKE A,B : NEXT A
7 :
8 REM -  SOUND FX DATA FOR PLAYER  -
9 :
10 DATA 0,0,129,0,80,03,01,15
11 DATA 80,1,19,10,0,2,0,3
12 DATA 180,0,17,10,0,1,0,1
13 DATA 4,0,129,12,0,0,1,0
14 DATA 2,0,129,12,0,0,1,0
15 DATA 100,0,33,0,100,0,0,40
```

Enter SYS 49152 again and follow it with POKE 760,1 to hear a simulation of a helicopter. POKE 760,2 : POKE 761,3 : POKE 762,2 simulates a sort of gong-type sound. SYS 49213 to clear SID and try POKE 760,4 : POKE 761,5 for a better explosion. Finally, add these extra lines to the listing and RUN the program:

```
100 SYS 49152 : POKE 760,6
101 FOR A = 0 TO 40 : NEXT A
102 POKE 761,6
```

This gives you an effective echo, try changing the delay (40) in the FOR/NEXT loop to vary the echo. To stop the effect just clear the SID again with the SYS 49213 call. For a complete explanation of how to install your own sounds read the 'Effects install' box on page 12 and you'll be well away. Have fun!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100+ tape games from 50p to £3.50, budget to compilation. All boxed. Plus C64 mags and tapes. Plus books. SAE for list. **17 Lime Street, Eccles, Manchester.**

C64C, 3.5-inch drive with software, datasette, printer, loadsa Zzap! mags and tapes. Games on cassette/cartridge, including Turrican and SCI. Offers? (Will split).
Phone: 0539 536409.

Silent Service, Battle Command, Bismark, Action Replay cart Mark VI and war game construction kit.
Phone: 061 789 1570.

20 C64 games for sale, including Eddie Kidd, Jump Challenge, Auto Test simulator and Interview. 28 Marshall Gdns, Hadlow, Tonbridge, Kent.

C64 and 1541 disk drive, Vic 1525 printer, sound expansion system, Action Replay, GEOS and loads more. £130.
Phone: 0582 862179.

C16+4 computer, datasette, joysticks, 100+ games and some educational software. £70 ono.
Phone: 0799 527163.

C64C, datasette and games. £40. Two 1541 Mk2 disk drives. £40 each. GEORAM and disks. £90. 90 disk games, 200 tape games, utilities, demos, music and Commodore Format issues 1 to 48.
Phone: 081 292 5577.

C64 tape players, 40 tapes, 200 disks, disk drive, printer, joysticks, mice, lightpens and more. Perfect for beginners. £150 ono.
For details phone: 0223 832805.

C64 cassette originals from 50p, including Defenders, OT Crown and others. For a complete list send an SAE to: **Mark Hammond, The Horseshoes, Dereham Road, Whinburgh, Norfolk NR79 1AA.**

C128D for sale. £75 with games on tape and disk. Games like SimCity (disk). Lightpen and tape deck included with the manuals and books.
Phone now: 0475 723181.

C64 (as new), datasette, two joysticks and all leads. All in original boxes with manuals. £45 ono.
Phone: 0403 822105 (Surrey).

Approximately 40 C64 games, plus Commodore Format PowerPacks 2 to 47. £40. 1351 mouse. £5. Action Replay cartridge (boxed). £20. Plus more.
Phone: Paul on 01795 845017.

Commodore 64 games for sale. Very cheap.
Phone 0533 849152 for complete list.

Two 64s, two disk drives, two datasettes (need repairing), two joysticks, loadsa software (200+), magazines and tapes (150+), and books. Offers? Contact: **Mike Summers, 11 Cumberland House, Warwick Street, Preston, Lancs PR1 1LH.**

Database disks for sale. First customer free disk. For more details, send an SAE to: Iain Macleod, 24 Weavers Ave, Paisley, Scotland PA2 9DR.

Games creator – £5. 15 budget games – £10. Ten full-price games – £10. Light gun and games – £10. Mayhem – £6. Yak's Progress – £10.
Phone: 0533 715392.

Cor! Wow! Get Trumps, the amazing new card game. Send a blank tape & 70p, or a blank tape, SAE & 20p. Also, free diary and upside-down letter programs. Contact: **Daniel Mossop, Smithy Cottage, Morrington, Dumfries, Scotland DG2 0JN.**

Commodore 64 with 1541 Mk2 disk drive, disk container, 19 disks, joystick, mouse, mouse mat and holder. Boxed as new. £90 ovno. Won't split.
Phone: 0435 865046.

Wec le Mans, Target Renegade, Renegade, Ghosts 'n' Goblins, Vigilante, Kick Box Man – £2 each. Odus (as new) – £3.99. Contact: **Richard Herbinger, 18 Cherry Orchard, W-U-E, Gloucester GC12 7HT.**

WANTED

Tape and/or disk contacts wanted. C64 to swap, buy game, etc. Contact: **Gavin, Brynhendy, Eglwyswrw, Crymych, Dyfed, Wales SA41 3SR.**

Urgently wanted: Barbarian from Psygnosis. Prefer disk version, but will consider tape. Note: I want the adventure/puzzle game, not the fighting game. Contact: **Tony, 4 Hulsidale, Hamnavoe, Burra, Shetland ZE2 9LF.**

Wanted by private collector: software for the Commodore C16 and Plus 4 computer. Anything considered.
Phone: Peter on 0444 440647.

Very cheap 1541 Mk2 disk drive. Must be in good condition. Will pay for postage. Please write to: **Drumshanny, Monaghan, Eire.**

SEUCK with manual on tape or disk. Will pay reasonable price. Contact: **Richard Holt, 57 Malvern Road, St Johns, Worcester WR2 4LE.**

Wanted: A sound digitiser on tape. Will pay £1 or under. Contact: **Stewart Palmer, 31 Southfield Road, Scartho, Grimsby, South Humberside DN33 2PW.**

Multi-player Soccer Manager by Cult on tape. I will buy it from you. Contact: **Stephen Windridge, 41 The Chantries, Stoke, Coventry CV1 5AL.**

C64 tape of Pictionary and Puzznics. Will pay up to £5 for both. Contact **8 Alan Close, Dartford, Kent DA1 5AX.**

Disc drive, Commodore 64, Great Giana Sisters. Plus instructions for Elvira and Popeye. Write to: **2 Brookdale Street, Melin, Neath SA11 1PB.**

Wanted on tape: Stormbringer (Mastertronic), Spellbound (Mastertronic) and Entombed (Ultimate). Will pay £7 for each original game. Write to: **Alex Dijkstra, Margrietenlaan 27, 4382TE Vlissingen, Netherlands.**

Big Box 2 wanted urgently on cassette.
Please phone: 0271 25885 after 5pm.

PEN PALS

Love programming the C64? Want a pen pal? Then please write to me stating your name, address, age and sex. Contact: **Duncan Grant, 5 Craighall Quadrant, Neilston, Glasgow G78 3HR.**

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WELL 'ARD ROM CHIPS

The US has long been famous for its hardware exports – jets, missile launchers and now JiffyDOS, a new ROM replacement chip for the C64. Russ Michaels gives you his best arms dealing pitch...

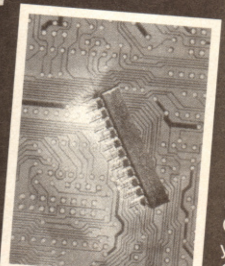
JiffyDOS is a replacement chip set for your computer's Kernal ROM and your drive's DOS ROM. It gives your C64 or C128 the disk access speed you've always wanted, plus a whole new range of DOS wedge commands to make using your disk drive simplicity itself.

There have been a number of speed enhancement ROM replacements over the years, such as Disk Demon, Speed DOS, Dolphin DOS and a few others, but none have survived the test of time, and none have been as compatible as JiffyDOS. Yes, some of them may have been faster, blindingly fast even, but that was because they avoided the verifying and error-checking procedures that ensure your data and files are uncorrupted. Besides, at up to 15 times faster than standard ROM chips, JiffyDOS is more than adequate.

Permanent boost!

JiffyDOS should not be confused with fastload cartridges, such as the Action Replay, which have inherent disadvantages. Because JiffyDOS is an integral part of your system the speed increase it produces is permanent; cartridges, on the other hand, are deactivated by the software and their fastload is only effective for the initial file you load, so multiload games would continue loading extra levels at the usual slow, cumbersome speed. Where a cartridge becomes ineffective, JiffyDOS keeps on going. It doesn't just work with PRG files either – it speeds up all forms of drive access; REL, SEQ and USR files and those programs that incorporate them, such as games, word processors and databases are all catered for.

Fastloading is not the only benefit, though. JiffyDOS also furnishes you with a whole new set of DOS wedge commands that make using your computer easier and more enjoyable. The built-in commands enable you to perform everyday disk functions without having to type in long BASIC instructions. You can format disks, load, save, verify, scratch and rename files with just a few simple keystrokes. In addition, a selection of convenience features make things even easier. These include: directory listing to either your screen or printer, function key definitions, screendump, a built-in file copier and much more.



This, for the uninitiated, is a computer chip. Note the lack of grease, salt and vinegar...

Multiple drives

JiffyDOS is the only system that offers multiple drive support for speeding up 1541, 1571, 1581 and CMD's HD and FD series drives with your C64's, 64C's SX-64's and C128's in both 64 and 128 modes. A C128 with 1571 or 1581 drive in 128 mode becomes even faster than with their already rapid, built-in burst mode.

The two-drive copier enables you to copy files of any filetype between two different drives, including HD, FD, RAMLink and Commodore REUs. The current device number can also be toggled for a multidrive system.

Quick and easy

JiffyDOS is surprisingly simple to install; clearly written instructions guide you step-by-step through the installation of the new chips for both computer and drive. Even those who've never seen the inside of a computer before should be able to install JiffyDOS within an hour. Installing JiffyDOS also gives you an extra switch on both your computer and drive, which you can then use to turn JiffyDOS off if need be – just drill a couple of holes, screw a couple of screws and off you go. And for those of you who aren't quite confident enough to attempt the installation, the Electric Boys company is willing to do the work for you. So, what are you waiting for? Get your orders in now – the sooner you do, the sooner the kit will be in the country.

Take command!

Okay, so what are all these new wedge commands? Well, below we take you through some of the shortcut keystrokes that JiffyDOS offers you. So you can wave goodbye to RSI.

Built-in DOS wedge commands

@	Display error channel	@C	Copy/combine files
@I	Initialise drive	@N	New (format) disk
@R	Rename file	@S or F8	Scratch (delete) file
@UJ	Reset drive	@V	Validate file
@$ or F1	Directory	@£	Set default device number
/ or F3	Load a BASIC program	^ or F5	Save a BASIC program
% or F7	Load an ML program	Left cursor key or F6	Save a BASIC program

Additional wedge commands

@B	Disable 1541 Bump head	@D or F2	List BASIC PRG from disk
@F	Disable JiffyDOS F-keys	@G	Set sector interleave
@L	Lock/unlock file	@O	Un-new BASIC program
@P	Toggle printer/screen output	@T or F4	List text file from disk
		*	Copy file
@X	Set destination drive	CTRL A	Mark/unmark all files to copy
CTRL W	Mark/unmark one file	£	Load and execute ML PRG
‘	Verify program	SHIFT/RUNSTOP	Load and run first file on disk
CTRL D	Toggle default drive		

WHERE TO GET IT

JiffyDOS costs between £29 and £42 (depending on the type of drive you have). If you want more details, then grab a copy of the Boys' latest product guide by sending your name, address and two first-class stamps to: Electric Boys, 917B Brighton Road, Purley, Surrey CR8 2BP.

BLITZ 2000

Mankind is boldly going where no-one has gone before, and, true to form, it's kicking every grubby little alien ass it comes across on the way. Rod Lawton leads the offensive...

Imagine you're piloting a highly sophisticated spacecraft. Imagine it won't go up or down. Imagine you don't have much fuel. And imagine you're the only person standing between the universe as you know it and utter destruction.

The bad guys are called Crux, and they keep building these incredibly irritating space colonies all over the moon. And the only chance you have of saving the Earth is to wipe them all out with your not terribly buoyant spaceship.

Actually, although it won't go up and down, it will go from side to side. And you can drop bombs on the colonies to destroy them. This is a pretty smart idea, because even though the moon doesn't have much gravity, it does have some, and unless you can knock down some of these buildings, you'll be dragged to the surface and turned into meat paste (meat and spaceship paste, actually).

Since there are 20 colonies to be destroyed, there are 20 levels to the game. And, not surprisingly, each one is harder than the last. To begin with the enemies are a bit tame. They just sit in their houses, staring out of the windows (well, I would be if I was them), waiting for you to bomb them to bits. Now and again they loose off a surface-to-air missile, but you can tell they're not terribly serious about it.

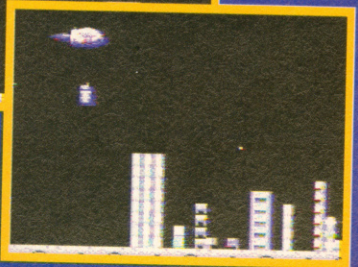
Once you've successfully flattened a colony you get a pat on the back and another tankful of fuel. Then it's on to the next mission... until you die. But if you get good enough, of course, you will eventually finish the game.

Anything else? Oh yes, there are some collectable items, like diamonds and pearls. Very useful, yes? No, they don't give you invulnerability or extra weapons or anything like that, but they're a great hedge against inflation. Do avoid the meteors, though, because they're not too hot on the Equity market right now, and they'll wipe your spaceship out, too.

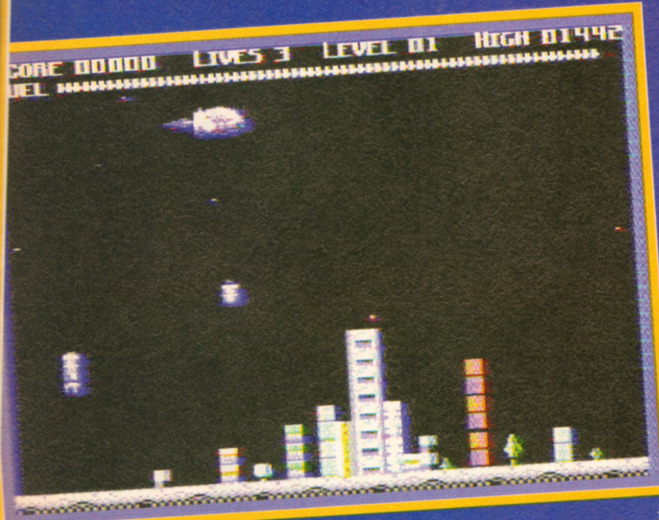
Blitz 2000 won't challenge your grey matter too much. You probably won't even need any, actually. It's all a predictable, unchallenging stuff, and while it's jolly enough in its own way, it's rather like going back ten years to play some of the really early C64 stuff. The gameplay is dead simple, and the graphics are crude but effective. It'll take two minutes to pick up and another ten minutes to put down again. Sort of a tea-break game really.

69%

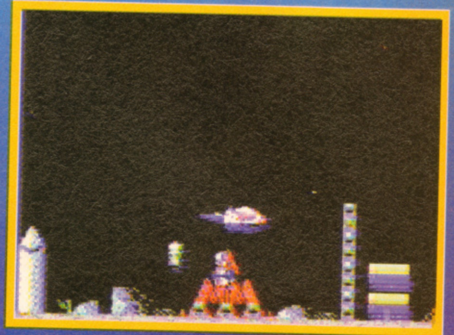
I'll just practise my low-gravity manoeuvring skills for a sec...



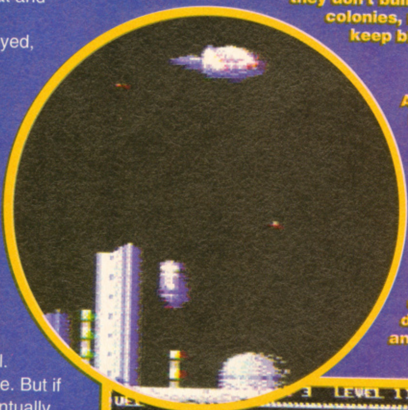
... Right, now that I can pilot this thing, I'll just practise dumping bombs on some unsuspecting aliens and their pretty skyscrapers.



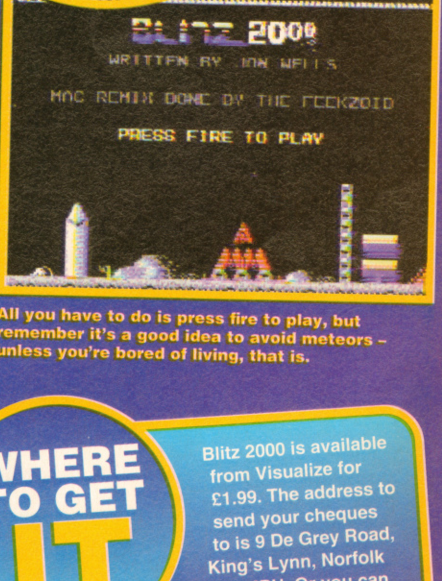
Wow, just look at this colourful moon colony. I think i'll just plonk a bomb down here. That should do the trick.



Those Crux are at it again. Don't they realise that if they don't build these colonies, I won't have to keep blowing them up?



And if you get bored of all the mindless violence that you're inflicting on the poor Crux, you can keep an eye out for all the extremely useless diamonds and pearls.



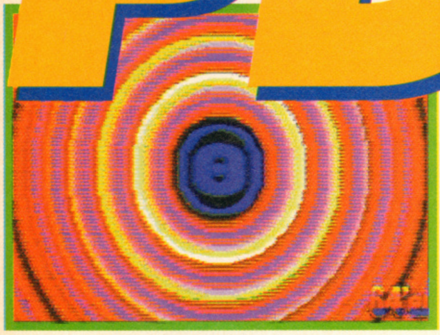
All you have to do is press fire to play, but remember it's a good idea to avoid meteors – unless you're bored of living, that is.

WHERE TO GET IT

Blitz 2000 is available from Visualize for £1.99. The address to send your cheques to is 9 De Grey Road, King's Lynn, Norfolk PE30 4PH. Or you can phone: 0533 760012.

PD FORMAT

Megademos need to be a bit special to gain a place in the annals of history. Andy Roberts reveals the top ten demos of all time...



Part 1 of the *Europe* demo boasts an impressive array of concentric circle action.

Europe

Tough

This demo consists of 12 different parts, each one created by a programmer/development team from one of the 12 different European countries - a very clever concept indeed. After the intro section, which features the standard yellow-stars-on-blue-backdrop logo, here's what you get…

Part 1: This section features a remarkable ripple effect, in which concentric circles of different colours move out from the centre of the screen. This is an effect seen in dozens of different Amiga demos, but this is its first incarnation on the humble C64. Very, very impressive.

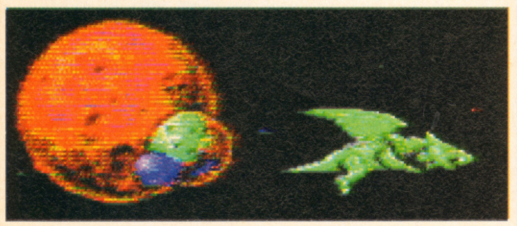
Part 2: It may look unimpressive to the uninitiated, but this represents some incredibly tiresome work for the programmer. Over a backdrop of music and

The Top Ten PD Demos

1 Dutch Breeze

(Blackmail)

This is an enormously popular demo, both here and throughout Europe, and it's one of our personal favourites. It boasts several innovative and polished sections, along with some stunning sonics. Perhaps the most memorable section is the 'tribute' to various C64 artists, which features sections taken from several classic loading/demo screens.



2 Top Priority

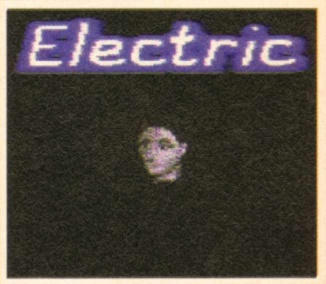
(Contex)

The legendary Cycleburner produced several demos for the C64, but this was by far the best. For those of you who aren't familiar with Mr C, he specialised solely in samples – good quality samples, particularly. While the demo has only four sections, none of which are stunning, the music and synchronisation effects make this a quality piece of software.

3 Electric Cafe

(Ash and Dave)

The writers of *Mission Monday* and *Terminal City* were legends in the Compunet scene (which was, incidentally, the starting point for the entire 'demo' scenario). They also found time to produce several demos, including this one. It boasts some amazing spinning heads, accompanied by Kraftwerk-esque samples. Nothing amazing, but ground-breaking in its day. They also created Digital Acid, which narrowly escaped inclusion in this top ten list.



4 Wild at Heart

(Panoramic Designs)

Another of our favourite demos. In fact, we think the title tune is one of the best ever on the C64. Panoramic's demos always had a strange effect – in fact, you rarely know what to expect when loading one for the first time. This production has some funny, innovative, and downright bizarre effects, complemented by slick programming and superb music.

5 The Equaliser

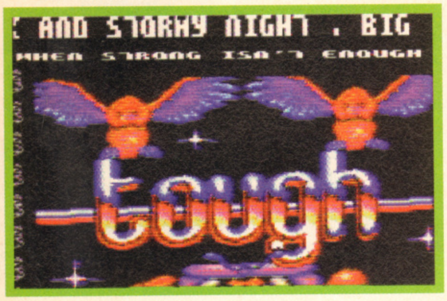
(Plasma Graphix)

This is another demo that first appeared on Compunet nearly seven years ago, where it caused quite a stir. It's basically the C64 version of the TV show's title sequence, and the Electrosound music is almost spot-on. Nowadays the quality is a little lacking, but a classic nevertheless.

THE EQUALIZER

More power for your Pack!

Not content with turbo-charging the recent PowerPacks with logos, pictures, and loading music, Electric Boys has also developed a new utility especially for disk owners who are fed up with the slow loading times of the older PowerPack cassettes. The *Rasterload Transfer* system enables anyone with a disk drive to transfer software from the *CF* PowerPacks directly on to disk. The whole thing is incredibly simple to use. The only drawback is that it only works with the loading system used on issues 18 to 49's tapes, so not every PowerPack can be transferred. Still, it's a valuable and time-saving utility that no disk-based *CF* freak should ignore. For more info contact Electric Boys PD.

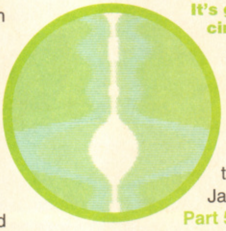


Part 3 features this impressive image flying around the screen at staggering speeds.

scrolling messages, two different logos stretch and contract up and down the screen.

Part 3: Another piece of technical wizardry. This part starts off with a colourful bitmap picture, along with some tiny rotating logos and an ever-so-stretchy scrolling message. After a short time, the picture begins to zoom around at incredible speeds. Quite simply awesome.

Part 4: Remember that old beat-'em-up called *IK+*? Remember the reflected sun that rippled across the surface of the lagoon? Well, this fourth section has a full-screen interpretation of that same effect – and very nice it is too. It also boasts a familiar tune: *Domino Dancing* by the Pet Shop Boys (which should keep Jason Finch happy, at least).



It's green, lean and is known in certain circles as part 4 of the *Europe* demo.

Part 5: This section, which hails from Belgium, is probably my favourite part, aside from the rather funky loading system. A rotating globe (made up from a mere 256 multicoloured pixels) bounces

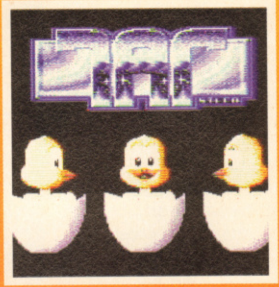
There are literally hundreds and hundreds of demos available for the C64. Some are just static pictures, some simple music compilations, but some are interactive and creative masterpieces. A megademo doesn't have to have millions of colours or flashy effects to be considered a classic, but it does need to be memorable and set standards for others to follow. Here's what we came up with...

6

Ducks

(TAT)

Budbrain is an accomplished (and somewhat twisted) Amiga coding team, which has produced several reknowned demos and characters. One of its accomplishments was the legendary 'Birdie Nam Nam', which was the inspiration for this particular production. It has a humorous, almost Orville-esque quality, and some very impressive samples.

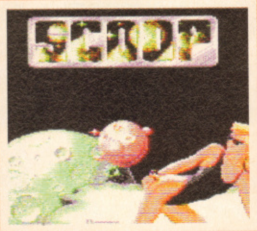


7

That's The Way It Is

(Scoop)

Charles Deenen, aka TMC, was one of the brains behind the legendary Maniacs of Noise team (see the interview with Jeroen Tel in *CF50*). Not only did he write its music player and dozens of funky tunes, but he also produced a number of demos (including *Knuckle Blow*, another one of our favourites). This demo set several standards in the industry, namely, polish, slickness, and enjoyability.

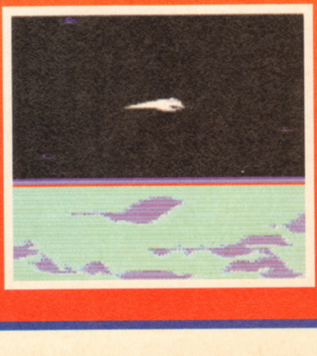


8

Terminus

(Drew Rodger)

Cult films always seem to retain their entertainment value, even though some of them are laughably dire. This demo is based on John Carpenter's space-bum epic *Dark Star*, and re-creates the sequence when a bomb is dropped on to a planet. It has a unique movie quality, enhanced by the quick scene changes and suitable sound effects.

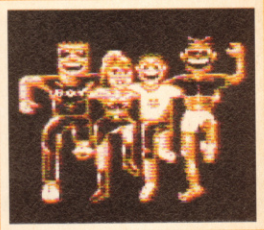


9

Graphixmania 2

(MDA)

This is yet another classic megademo that set new standards for animation and polish, hence the name. Its most impressive quality is the way in which the sound and images gel together perfectly, particularly on the Lion section. One of the parts even boasts a megamix, comprising of several different classic tunes. A must for megademo freaks.

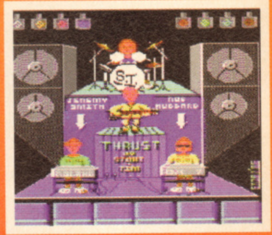


10

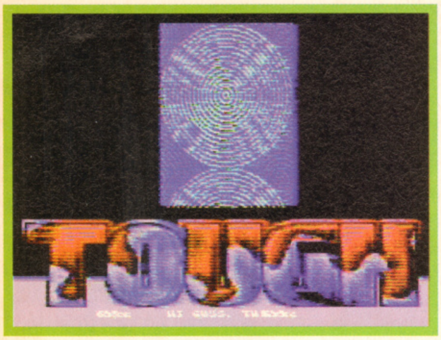
Thrust Concert

(Stoat and Tim)

Rob Hubbard was a legend in the C64 world, picking up credibility with each successive tune (he also started out, like many accomplished programmers, on Compunet). His music for the *Firebird* game, Thrust, was good enough to make Stoat & Tim (Compunet coders, believe it or not) write this demo, which features a band playing the music. It's simple, but enjoyable.



So there you have it – the top ten demos of all time... maybe. Perhaps you don't agree with our choices, in which case let us know. In fact, why don't you jot down your top ten demos on a postcard and send them in to us at: PD Format, *Commodore Format*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW. And just as an extra incentive, the first letter pulled out of the office hat will win some free software. All the usual rules apply and Karen's decision is final.



Say hello to the John Major of *Europe's* demos – all it needs now is the grey suit!

Mayhem gets taped

Remember the *Mayhem in Monsterland Demo Disk* we mentioned waaaaay back in *CF47*? You do? Were you just a little annoyed that the compilation was restricted to disk-owners only? You were? Well, you'll now be able to wipe that long-smouldering grimace from your brow, because the entire kaboodle is now available on cassette, which should please more than a few of the old and avid dinosaur fans.

Once again the compilation includes three enormous playable levels (which are actually cut-down versions taken directly from the finished game), a number of music select demos, and even the ever-popular MC Mayhem music mixes.

If you're a keen *Mayhem* fan (and let's face it, who isn't?) with a tape deck, give this bulging package a try. For more info contact Binary Zone PD.

around the screen like something out of an Amiga demo. Indeed, it bears a striking resemblance to a Phenomena megademo I saw a couple of years ago.

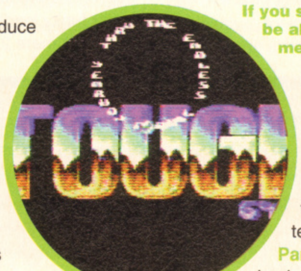
Part 6: And what would you expect to follow the most exciting section of the demo? That's right, the least exciting section. This part includes interlacing concentric circles that produce hideous chroma effects, and, to be honest, I couldn't have pressed the space bar any quicker.

Part 7: Another simple section, comprising of a colourful logo and some rather funky DYSP movement. Er, and that's about it.

Part 8: Plasma is an effect that seems to be appearing in more and more C64 demos, and this demo has it's own version too. This particular section utilises extended background colour mode to produce some funky character-based effects, along with the usual music and scrolling message.

Part 9: Another technically-impressive section, which has five different colour splits on every rasterline. It may seem trivial to the average C64 punter, but glitch-free raster splits are awkward and tiresome at the best of times. Add to this a stretchy sprite scroller, and you begin to marvel at the sheer talent (or madness) of the programmer.

Part 10: This part is both innovative and fun to watch (even though it's incredibly hard to read). It's basically a circular scrolling message, which bounces smoothly around the contours of the screen. Heck, you may not be able to read it, but boy does it look good.



If you squint really hard you might just be able to make out the circular message in part 10 of this demo.

Part 11: Another simple section, consisting of five huge 'TOUGH' logos that move up and down the screen. Amid the relatively simple effects you'll find some very clever tricks at work. Another section for the technically-minded to gape at.

Part 12: The final section is, well, basically, a test card. Ever watched BBC2 early on a Sunday morning? Well, this is the sort of thing that you'd expect to see, along with the appropriate sound effect. *Europe* is an impressive demo, and varies considerably in terms of quality and simplicity. The whole production is extremely well put together, and includes some very nice music to accompany the effects. It's a very good example of co-ordination and programming flair, and is an absolute must for any self-respecting demo collector.

85%

PD Format Directory

It would be biased, unfair, and downright naughty to recommend any one particular library – PD software is free, and most libraries will have the latest software in stock. That's why we've spared no expense and produced the PD Format directory.

If you've never ordered PD software before, write to a few libraries (enclosing an SAE) and ask for an up-to-date catalogue. Some libraries only stock disk-based software, so it might also be a good idea to mention whether or not you own a disk drive. To make life easier, we now specify whether the companies stock tapes (T) or disks (D) next to the company's name – all at no extra cost.

If you run a PD library and can't find your company listed here, write to us at: PD Format, Commodore Format, 30 Monmouth Street, Bath, Avon BA1 2BW. And if you're a programmer or PD library manager, that's also the address to which you should send your latest software.

Binary Zone PD / The Guild (T & D)
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Electric Boys PD (D)
917B Brighton Road, Purley, Surrey CR8 2BP.

Fox PD (T)
6 Sturton Avenue, Goose Green, Wigan, WN3 6SZ.

KDPD (T & D)
9 Failford Place, Kilmarnock, Scotland KA3 1UJ.

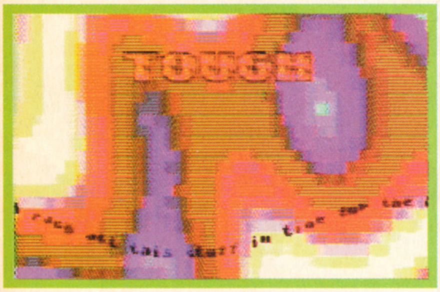
Kingsway PD (D)
72 Glencoe Road, Sheffield S2 2SR.

MK PD (D)
1 Westmore Close, Burrows Park, Northam, North Devon EX39 1SR.

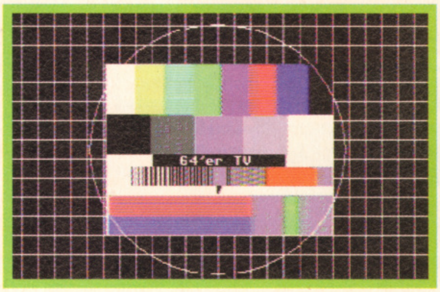
Megatronix PD (T & D)
21 Tiled House Lane, Pensnett, Brierly Hill, West Midlands DY5 4LG.

PLPD (D)
40 Windsor Avenue, Whitehead, County Antrim, Northern Ireland BT38 9RX.

Shareware Plus (D)
Fulfilment Centre, 66 High Street, Pershore, Worcestershire WR10 1DU.



Part 8 features the latest plasma effect to escape the rave-frenzied nightclubs...



Part 12 comes in the form of this TV testcard – which is pretty handy for checking your colours.

More PD games!

Since the 'Top 20 PD Games' feature in *CF50*, Binary Zone has been inundated with orders. In response to such an overwhelming demand for low-cost software, Jason 'Kenz' MacKenzie is already making plans for a second Public Domain games compilation, which should be available some time this month.

Binary Zone's software label, Psytronic, has recently received plenty of games, which may also be suitable for inclusion on the compilation, along with several other classics. Watch this space.

TECHIE TIPS

Once again, Jason Finch pulls his undies on over his tights and dashes to the rescue of some Commodore users in distress.

I UNDERSTAND...I KNOW WHERE YOU'RE COMING FROM..
THE DOCTOR IS IN

Life can be depressing when you can't sort out your blocks or heads.

Blockhead?

Dear Techie Tips,
I have recently purchased a used 1541 disk drive for my C64 and have been having trouble formatting disks. Whether I use the 'New' function from DOS or the format on the Action Replay VI cartridge, most of the time I get only 65 blocks free.

Occasionally, I've been able to format several disks properly, but then it returns to 65 blocks instead of 664. The problem is I'm not sure whether I have a drive fault or whether my C64 is to blame. I have been told that the 1541 is temperamental. Is it likely that the drive head needs adjusting and, if so, is this simple to do?
CR Lord, Paignton

Before you start looking at costly problems, you should check out the disks that you're using. It could be that they're of low-quality. You should be aiming for disks of 96TPI, because lower grade ones, like 48TPI, can cause a few problems with the 1541. However, if that's not the case, it's probably a problem with the head alignment of the disk drive itself. Realignment is quite easy if you know what you're doing, but then again, it's quite risky if you don't. So, if you don't get any joy from the high-quality disks, send it off for repair. **Jason**

Mister Sprite

Dear Techie Tips,
1. How do you change the shape of a sprite?
2. Can you have a picture on the screen holding with a WAIT command while you're still moving a sprite with a joystick?
3. I'm only ten and can use sprites with ease!
James Masterson, Oxford

1. Sprite definitions, as they're called, are controlled by locations 2040 (for sprite zero) to 2047 (for sprite seven). If, for example, you put the sprite data at location 832, you would do POKE 2040,832/64. You divide by 64 because each sprite block uses 64 bytes of information; the last of which is ignored.

If you have a lot of sprites, you can put the data at locations 8192-16383. Then you would do POKE 2040,8192/64 and so on. Basically, the command is POKE 2040+S,L/64 where S is the sprite number (0-7) and L is the location of the data that must be divisible exactly by 64. If you have lots of sprites you may have to start considering bank switching, which we discussed in an earlier issue.

2. If the sprite control is done through a machine code interrupt, then yes. But if it's done through BASIC then, no, because no other BASIC commands can be executed while a WAIT command is holding.

3. No-one likes a smart ass, you know! **Jason**

On reflection

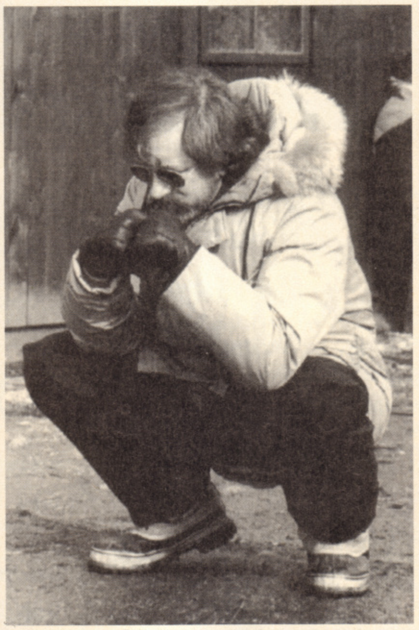
Dear Techie Tips,
I have written a program with a lot of different 'modules' that do different things depending on the value of the variable X. At the moment the program works out what to do with fifty lines like this:

```
100 REM DECIDE WHAT TO DO
101 IF X=1 THEN 1000
102 IF X=2 THEN 1500
103 IF X=3 THEN 2000
104 IF X=4 THEN 2500
...
150 IF X=50 THEN 25500
160 GOTO 10
```

Is there an easier way to do the same thing? I've tried using ON X GOTO, but I can't get enough line numbers on the 80 character line. Help would be greatly appreciated on this one!
Paul Atkins, Birmingham

The ON command is definitely what you need, but the key lies in splitting it up so that you only have, say, eight numbers on each line. Each consecutive line starts something like ON X-8 GOTO.. and ON X-16 GOTO.. and so forth. If you're still unsure, try the snippet below. **Jason**

```
100 REM DECIDE WHAT TO DO
101 ON X GOTO 1000, 1500, 2000, 2500, 3000,
3500, 4000, 4500
102 ON X- 8 GOTO 5000, 5500, 6000, 6500, 7000,
7500, 8000, 8500
103 ON X-16 GOTO 9000,
9500,10000,10500,11000,11500,12000,12500
104 ON X-24 GOTO
13000,13500,14000,14500,15000,15500,16000,1650
0
105 ON X-32 GOTO
17000,17500,18000,18500,19000,19500,20000,2050
0
106 ON X-40 GOTO
21000,21500,22000,22500,23000,23500,24000,2450
0
107 ON X-48 GOTO 25000,25500
```



Word has it that even Speilberg has trouble getting hold of a decent word processor!

Lights, camera... word processor?

Dear Techie Tips,
I'm an apprentice film screenplay writer and I'm working on my first full script using my trusty C128D. I can't abide the thought of having to use a PC! I am currently using the Paperclip *word processor, which is pretty good with fast and easy editing. However, I could do with a better word processor, particularly one with instant centering. Does anyone, anywhere, know of a better word processor for the C64/128, one which is geared to the fast production and editing of large quantities of text? I have already tried* Mini Office, Easyword, Visawrite *and* Interword, *none of which fit the bill. Also, is there a spell-checker program available anywhere?*
Laurence Coombes, Chobham

I've always found that the best word processing package for the C64/128 is *SuperScript*. This had an earlier version called *EasyScript*, which was also very good. *SuperScript 128* runs in 40 or 80 column mode on the C128 – or C128D, of course – and can handle over 58K of text. You can work on two documents simultaneously and can set up macros to handle all manner of operations quickly. It includes a spell-checker. But, bear in mind this 'Ode to Spell-checkers' when putting your life's work in their less than capable hands:

I have a spelling checker,
It came with my PC.
It plainly marks for my revue
Mistakes I cannot sea.
I've run this poem threw it,
I'm sure your please too no
Its letter perfect in its weigh;
My checker tolled me sew.

As to where you would get hold of a copy of this software, I'm not entirely sure! It went out of production many moons ago, but you may pick a copy up in Buyarama *(Especially if you place a Wanted ad, which will be free, of course – Karen)* or in your local free-ads paper. **Jason**

Up the creek!

Dear Techie Tips,
I've just bought a sort of bargain box of C64 bits and included are some paddles. They plug into the joystick ports, but I don't seem to have any games that use them – and I haven't got a clue how they work. Could you tell me please, and also give me a BASIC listing for reading them? Thanks.
Paul Murphy, Peterborough

A few of the early games released for the C64 worked with paddles (a lot of them were on cartridge for some reason or other). Let me just bombard you with technical details. A paddle is connected to 6526 Complex Interface Adaptor 1 and to the 6581 SID chip through the joystick ports, with its value being read from locations $D419 and $D41A. You really ought to read them through machine code rather than BASIC. However, if you use the SYS command and then PEEK the appropriate locations, you can use the following bit of code to work out what the paddles are up to. **Jason**

```
100 REM PADDLE READING ROUTINE
110 FOR X=0 TO 63:READ Y:C=C+Y:POKE
49152+X,Y:NEXT X
120 IF C<>8034 THEN PRINT "DATA ERROR":END
130 :
140 SYS 49152:REM READ PADDLE INFO
150 P1=PEEK(49409):REM PADDLE ONE
160 P2=PEEK(49410):REM PADDLE TWO
170 P3=PEEK(49411):REM PADDLE THREE
180 P4=PEEK(49412):REM PADDLE FOUR
190 F1=PEEK(49413):REM FIRE BUTTON A
200 F2=PEEK(49414):REM FIRE BUTTON B
210 :
220 PRINT CHR$(147)
230 PRINT "PADDLE VALUES:"
240 PRINT P1,P2,P3,P4
250 PRINT
260 PRINT "FIRE BUTTONS:"
270 PRINT F1,F2
280 :
290 FOR X=1 TO 100:NEXT X
300 GOTO 140
310 :
320 DATA 162,001,120,173,002,220,141,000
330 DATA 193,169,192,141,002,220,169,128
340 DATA 141,000,220,160,128,234,136,016
350 DATA 252,173,025,212,157,001,193,173
360 DATA 026,212,157,003,193,173,000,220
370 DATA 009,128,141,005,193,169,064,202
380 DATA 016,222,173,000,193,141,002,220
390 DATA 173,001,220,141,006,193,088,096
```

Short and sweet

Dear Techie Tips,
Rumour has it that it's possible to abbreviate the BASIC keywords so you don't have to type the whole lot in and can fit more on to one BASIC program line. How is this done?
Jeremy Heywood, Macclesfield

Well, I'm not sure where you do your socialising to hear gossip like that, but it's certainly true. The technique enables you to put more commands on a line by abbreviating, say, four letter commands to two characters. However, you should be careful when using abbreviated commands: if you use them with a line that goes over 80 characters in length, you won't be able to edit the line when the command words are expanded again – and we all know the nightmares that can lead to.

To obtain the abbreviations, you need to key in the first one or two letters, then, holding down the SHIFT key, type in the next one (this produces a graphic symbol). The PRINT command is the exception. You can abbreviate this to a question mark. So the command ?A is the same as PRINT A. For example, to abbreviate GOTO you would press G, release it, then hold down the SHIFT key while you tap O. But for GOSUB you would press G, release it, press O, release it, then hold down SHIFT while you tap S.

Commands requiring just the first letter before the SHIFT operation are ABS, AND, ASC, ATN, CHR$, CLR, CMD, CONT, DATA, DEF, DIM, END, EXP, FOR, FRE, GET, GOTO, INPUT#, LET, LIST, LOAD, MID$, NEXT, NOT, OPEN, PEEK, POKE, PRINT#, READ, RIGHT$, RND, RUN, SAVE, SGN, SIN, SPC(, SQR, STOP, SYS, TAB(, THEN, USR, VAL, VERIFY and WAIT.

Commands requiring the first two letters to be typed are CLOSE, GOSUB, LEFT$, RESTORE, RETURN, STEP and STR$.

And that's it, all other commands have no abbreviations. **Jason**

QUICK SHOTS

- ***I was going through my collection of old mags the other day when I found the ClubLIGHT demo. I was wondering if it's still going and, if it is, how can I join?***
Chris Neville, Maidenhead

LIGHT only managed to produce seven issues before it ceased publishing, and unfortunately no back issues remain. Jason

- ***Is it possible to get hold of a CD-ROM drive for the C64?***
Iain Macleod, Glasgow

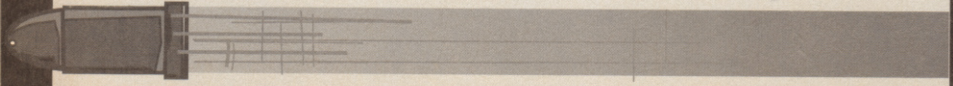
Not that I know of. The Electric Boys Software comapany is looking into the possibilities of importing hard drives from America though, and don't forget its amazing offer of getting hold of a 1541 disk drive for a penny short of seventy quid. And that's definitely something worth saving up for. Jason

- ***Your section is brill, but why oh why can't it be ten pages long?***
Patrick Kelly, Bedford

Because that wouldn't leave room for much else. Jason

CMD
FD-4000
3.5" Floppy Drive
SWAP
POWER
ACTIVITY
ERROR

No CD-ROMs, but these American FD4000 drives (which Electric Boys Software is plannig to import) are capable of storing 3.2Mb. Pretty hot stuff!



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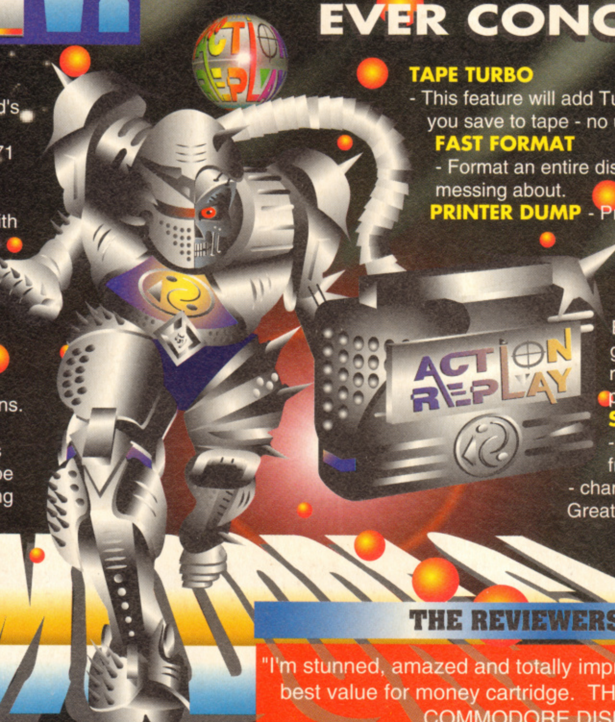

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